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Retail Outlets

WHO are the outlets for the electrical manufacturers' products? What are their relative importance? Is the public being served to the best advantage?

These are some of the questions which will be answered in the next issue of the Journal of Electricity. E. A. Kincaid, whose articles describe the results of a survey of electrical distribution on the Pacific Coast, makes some startling disclosures in his next article. It is easily the best and most important of any he has written. Discussing the contractor-dealer, Mr. Kincaid says:

"Some hold that he is neither contractor nor merchant but an economic incongruity, the manifestation of industrial change and the product of undirected growth and expansion of the industry. Others say that he is the logical outlet for electrical goods, that he should be fostered and encouraged as an indispensable factor in the distribution of electric goods. . . . The truth must be found somewhere between these two extremes."

Many vital questions on the subject of distribution are answered. Speaking of margins, Mr. Kincaid says:

"There are those who say that it is all a question of margins. The retail margins are too narrow, profits cannot be realized and the right type are not attracted to the business. This approach to the question is just the reverse of what it ought to be. Are the margins to be so adjusted that even a lineman can merchandise with success? If so, then the cost of distribution will rise. . . . and the problems of the industry be aggravated."

So important do we feel this article that we recommend every man in any way connected with the distribution of electrical products to study it carefully. Watch for your next issue. It will be a red-letter one.

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Starting and Finishing

THERE are two major components that make up a horse race, or any other kind of a race—a start and a finish. This is equally true of life itself, in which there are many starters, but not nearly so many finishers. Some people are so busy starting things that they never finish any of them. However, a truce to philosophical abstractions. Let us get down to business.

CONSIDER the "Smiles" campaign. It has been started, well started. The committee of the Public Relations Section of the Pacific Coast Electrical Association charged with it has done a good job in this particular. It has devised the plan, a plan that has already received national recognition as embodying something really unique in the public relations problem. It has prepared the literature, told the story to the industry, and launched the enterprise in a manner wholly commendable.

WE hope, now that the first flush of enthusiasm has had a chance to subside, that this movement is not to be allowed to languish and perhaps die from lack of nourishment. Cynics are already shrugging their shoulders with an "I told you so" expression on their faces. They look to see the "Smiles" movement go up like a rocket and come down like a stick.

THIS is a responsibility of the electrical industry as a whole. The committee has done everything and more than could be expected of it. There is no reason whatever why every living person within the industry, whatever his capacity or place in the organization chart, should not be wearing the button on his lapel and the smile on his face. There are those who think the button is the beginning and end of the "Smiles" movement. It may be, and is, the beginning, but, rightly, there should be no end. It is primarily an idea, a thought, that should so impress itself upon the consciousness of everybody as to become an integral part of his character.

THIS is a good opportunity for those who claim the qualities of leadership to justify their claim by lending their energies in full measure toward the consummation of that ideal of Courteous Service of which the little red button is the outward, visible sign.

Education and Public Relations

EVERY university and college in Colorado, and approximately 100 high schools in the territory covered by the Rocky Mountain Committee on Public Utility Information are now conducting public utility courses, according to a recent statement made by George E. Lewis, executive manager of the organization. In discussing the work of the committee Mr. Lewis said:

"The universities and high schools are virtual treasure-chambers of good will for the utilities. The students are quick to grasp utility subjects; they are easily interested, and they readily carry their new opinions and convictions into their home circles. It has come to the notice of the committee that entire families have revised their opinions and sentiments toward the utilities as a result of enlightenment on the part of student-members of the family."

Four booklets are published by the committee for use in the high schools. They are "The Romance of Electricity," "The Romance of the Telephone," "The Romance of Gas" and "The Romance of the Trolley." These booklets are not being circulated among the students except in rare cases. Instead, local managers of the utilities are presenting the subject matter before classes and assemblies.

Another feature of the committee's work consists of the promotion of newspaper advertising as a means of building up public understanding and friendship. The committee regularly prepares copy which is circulated among all utilities in the district, whether members or not. In 1923 approximately 100,000 in. of good-will advertising appeared in the papers of the region.

From the standpoint of results the committee is justifying its organization. In addition, it is setting a worthy example for other similar bodies to follow. Greater even than this, it is proving that education along utility lines is sorely needed; that means for providing that education are at hand; and that the public is receptive.

Study of Electric Heating Load Needed

DOMESTIC and commercial electric heating has been made the subject of considerable discussion among central station men. In certain sections of the country, notably in California and and one or two other Pacific Coast states, its development has been marked. In other sections its application has been ridiculed, and it has been placed in the same category as "cold light" and perpetual motion. This development in electric heating, in most cases, has been in spite of and not because of the central stations. Manufacturers, jobbers and dealers have done most of the pioneering. New products have been developed, educational advertising sponsored and practically all of the sales work done by this group.

In sections where this work has been performed rapid progress has been made. Carefully directed sales efforts have been productive of results. Such arguments as the refinement of electric heating, its safety, comfort, convenience and ease of application, have met with almost immediate public response. A large number of installations have been made as a result. Homes and commercial buildings are now electrically heated. In particular, the application has been successful in apartment buildings. Several schools are electrically heated and there is talk of heating entire office buildings in this manner.

Despite all this, many power company executives either smile or shrug their shoulders when the subject of electric heating comes up for discussion. Their attitude seems marked with indifference and in most cases, this indifference is based upon a lack of definite knowledge of the subject. Such primary factors as diversity, revenue for kilowatt-year, high and sudden demand requiring sufficient capacity to take care of the maximum and other moot points never have received sufficient study to convince these executives of the desirability of this load.

Sufficient installations have been made, or will have been made in the near future, to furnish ample opportunity for a detailed study of the subject. Only by means of such a study can definite information be secured. Certainly some such investigation is needed to settle many of the points under discussion. Either a committee from the National Electric Light Association or one of its regional branches should be assigned the task and provided with the necessary funds to make a study of this nature.

Western Industry and Western Waste

FOREIGN economists who visit America are nonplused at what they term our greatest vice—waste. They look aghast at our waste of time, money, materials, effort and opportunity. The ordinary American citizen, with a shrug of the shoulders, dismisses their criticism with the statement, "Our standard of living is responsible." The real waste is not with our individual citizens. It is with industry. There are certain phases of our industrial life here in the West that are excellent examples.

Practically all of the Western states are rich in natural resources. Few sections of the world produce a greater variety or a larger quantity of raw materials. The utilization of these natural resources and the production of raw materials furnish employment to thousands of workers, produce great sums of money. They are an industry in themselves. Yet they are not factories. Most of the factories belong to the Atlantic Coast or to the industrial centers of the Middle West. We ship our raw materials—wool, cotton, minerals, leather and the like—to Eastern mills, where they are fabricated and then shipped back to be purchased and used. We pay the freight both ways. We countenance the waste.

The West has an abundance of electric power for turning the wheels of industry. It has every natural advantage, including the door to the greatest potential market in the world—the Orient. Living conditions are better; climatic conditions are unexcelled. There is no economic reason why Western raw materials should not be fabricated in Western cities.

Out of this economic error will one day come opportunity. We shall have many factories. The demand for raw materials will increase. Cities will grow; back country will develop. In a word, we will enjoy a greater prosperity than is our measure today.

The Pot of Gold at The End of the Rainbow

LIKE the pot of gold at the end of the rainbow are the promises of the Public Ownership League of America. In a recent interview, Carl D. Thompson, secretary of this organization, described in the following phrases some of the results to be achieved if the "superpower" system fostered by this organization is completed:

"Light your home, cook your meals, wash and iron your clothes, run your sewing machine and clean your house all by electricity for less than a dollar a month!

"Get electrically the equivalent of 120 hired men on your farm for 60 cents a day!

"Electricity will be so cheap that it will not pay to install meters and keep accounts."

America seems to be particularly blessed—or cursed—with this type of mind. Men go about, chasing rainbows, blowing bubbles, with no regard to fact. For the most part, the public looks on and smiles. Perpetual motion, communication with Mars and transmuting base metals into gold are some of their pet schemes. They flit about, aimlessly, like butterflies, cause a slight ripple on the surface of life, and are gone. Their theories, like bubbles when pricked, are found to be full of hot air.

Courses for Employees Have Many Advantages

COURSES of instruction on various phases of the electrical industry are offered from time to time by either the National Electric Light Association or one of its regional subdivisions. During the last year there have been classes for electric truck salesmen both in the East and on the Pacific Coast. It has been customary also to offer classes for meter men in several cities. An announcement has just been made that such a course will be given in Denver under the auspices of the Public Service Company of Colorado and the state university during the coming month. Intensive instruction of this nature has many advantages, for it supplements the practical experience gained by the men in the field. Central station executives in the region adjacent to the city where the course is to be given should see that every opportunity is afforded their employees to take advantage of the classes.

Light Opera de Luxe

WHO says there is nothing new under the sun? Now comes the Clavilux, also called a "Color Organ," an electrical device that projects what is called mobile color upon a screen. It is manipulated from a keyboard, like the console of an organ, and produces a riot of color that forms a silent composition of great beauty.

It is really, so we are told, the expression of music through the color motif. It takes form and rhythm; in fact it conveys to the senses of the spectator much the same thrill afforded by the dulcet tones of a Tetrazzini, or the stentorian basso of a de Reszke or a Plancon.

This is great news for the Intelligentsia. How they will revel in this new sensation! Down with the futuristic and cubist expression of pictorial art, away with Bakst and Erte, out with Einstein and his relativity; the bobbed haired, be-smocked Greenwich Villagers have a new cult.

If music may be presented in soundless color, why should not the kilowatt, public relations and government ownership be presented in the same manner? Let the kilowatt be a delightful shade of blue, public relations a delicate pink, and government ownership a flaming red. Let there be light.

The Federal Power Commission Might Employ the Navy Publicity Man

PUBLICITY is a powerful weapon when properly wielded. It has made men; it has broken others; and it has been unscrupulously used to foist unjust measures upon an unsuspecting and gullible public. Publicity, labeled as such, is legitimate. Publicity used to impute motives or to mould public opinion upon questionable subjects is propaganda and should be frowned upon. The public, however, is not in a position to discriminate between the two.

Take, for instance, the recent newspaper talk about the trip of the new navy dirigible to the North Pole. Columns were published on the subject. The Navy Department was successful in securing thousands of inches of national publicity. Now the trip has been called off for one reason or another. An expert on aviation has told us that the trip was never planned to be carried through; that it would have been impossible; that, in a word, the department was only seeking to build up a wave of favorable public opinion. And why? Congress is in session. Appropriation measures are up for consideration. The Navy Department wants its share.

Consider, on the other hand, the Federal Power Commission. Charged with the administration and supervision of the national water power resources, this organization has been forced to function under difficulties from its inception. Undermanned and under-financed, it has struggled along, getting help from such other departments as it was able. Attempts to secure additional funds in the form of an appropriation have proved unavailing. From all appearances the commission will be forced to continue to exist in its present hand-to-mouth fashion.

Perhaps someone can suggest a circus publicity stunt which will direct attention to the Power Commission. It has no Shenandoah to send to the North Pole. Perhaps if one of its engineers were to ride the rapids of the Colorado River canyon on a surf board Congress would look with more favor upon the commission's appeal for funds.

CURRENT COMMENT

Objectionable Features of Erickson Bill

Some of the objectionable features of the proposed Erickson bill for public ownership of hydroelectric utilities in Washington are already being recognized by the press of that state. Certain militant editors whose policies are directed from national headquarters are working diligently for the measure whereas others, realizing the dangers of such a socialistic move, are already presenting arguments against it. Some of the particularly obnoxious features of the bill are outlined in the following editorial from the Spokane, Wash., Spokesman Review:

This is a highly socialistic measure that would set up a commission of five autocrats and confer upon them unprecedented and dangerous communistic authority to put out vast bond issues without the consent of the public, and to levy heavy additional taxes without public approval.

Under the Erickson bill the state is not to be the power-developing and power-owning authority; nor the counties; nor the cities or towns. A new and dangerous super-government would be set up, and the end of the reckless experiment no man can foresee.

The advocates of the measure intimate a purpose to cut the state into two "public utility districts"—one east of the Cascade Mountains, the other west. The bill is so framed, however, that the entire state could be taken into a single "public utility district," and the extent of the district or districts would be whatever the advocates of this bill want it to be, for they have the organization and purpose to determine that.

If it should suit their purpose to make the state into one big district they would have only to present a petition for an election to the secretary of state, to be signed by "not less than 500 qualified electors in all class A counties, 250 in all first and second class counties, and 100 in all other counties." King County (Seattle) is the only class A county, and Pierce (Tacoma) and Spokane are the only first and second class counties. So a petition signed by 500 socialists in King County, 250 socialists in Spokane and Pierce Counties and 100 socialists in each of the other counties of the state, would throw the public into the turmoil of a public ownership election.

The powers of the public utilities district thus organized would be exercised by a commission "consisting of a president and four commissioners." Here are some of the unheard-of powers that are to be conferred upon five men:

The commission, merely by resolution, could contract indebtedness equal to 1½ per cent of all the taxable property in the entire district.

This board of five men would be given the further power to levy annual taxes upon all the property in the district, for the bill expressly provides that they shall be authorized "to raise revenue by the levy of an annual tax on all taxable property in such public utility districts, not exceeding 2 mills in any one year, exclusive of interest and redemption for general bonds."

This means that the commission could make an unlimited levy for bond interest, or bond redemption, and could make a further levy of 2 mills each year to cover any deficit that might result from their bad judgment, mismanagement or dishonesty.

These are only a few of the dangers lurking in this communistic measure that is sponsored by the same men who have made a stupendous bungle of public ownership at Seattle.

Superpower Agitation Is Continuing

Superpower, giant power, super-trust and super-service. The press of the nation has taken up the idea first advanced by Secretary Hoover and is twisting and turning it to please the public fancy, with little or no regard to the facts. The interpretation of the term seems to depend upon the particular leanings of the particular editor who is writing the comment. The dangers of the agitation have already been pointed out. For those who feel that the electrical industry is showing needless anxiety, we offer the following from the Seattle, Wash., Union-Record, a paper with decided leanings toward labor:

Good people are arguing if a reasonable system for the development of superpower with proper protection for the workers can be worked out, the question of control or ownership will not matter, or at least can be postponed. That seems to us extraordinary reasoning.

It is already certain that superpower requiring the development and distribution of electricity derived from water-power and from coal must be integrated over the country. It must approach a monopolization. The group or groups which control superpower will be the rulers of our life. The conduct of industry and the comfort of homes will be dependent upon those who control this enormous giant which may be either the servant or the master of men. No vast power can safely be entrusted to any monopoly.

The experience of regulation of railroads and public utilities shows how nearly futile is the attempt satisfactorily to regulate monopoly power. Now, before it is too late, is the time to decide whether the people or interests shall control the power of the future. It was this fact that gave significance to the Washington conference called by the Public Ownership league and attended by representatives of various farmers' organizations, labor unions, the League for Industrial Democracy, and friendly congressmen.

Senator Norris has already prepared a tentative draft of a bill for federal control of super-power. Labor unions should get in touch with him in order to procure copies of the bill and to assure him of backing in his fight for the people.

A saner view of the subject is taken by the Portland, Ore., Oregonian, which points out some of the fallacies in the arguments of the municipal ownership journals. The following is quoted from a recent editorial in the Portland paper:

Having taken up the cause of public ownership of hydroelectric plants in the State of Washington, the Hearst press is exciting itself and its readers over the terrible menace of a superpower trust. Through interconnection of all power systems we are warned "such a trust would hold America's manufacturing, America's irrigation, America's transportation, America's residential development in the hollow of its hand as Goliath might have held four pebbles from David's sling." The ominous announcement is made that "it already exists in the Northwest" and that "a network has been formed from Oregon to California." "The kings of wealth" are dreaming that "huge private power interests" will "merge into the superpower octopus for perpetual profits, perpetual dominion, a perpetual orgy of superfinance." Then we are informed that "the one thing that can prevent that dream from coming true is public ownership of water and power."

Now the federal power commission, composed of the secretaries of war, agriculture and interior, tells in its annual report what this superpower octopus really is, without any reference to an "octopus" or "kings of wealth." The commission says:

"It (superpower) means that existing generating stations shall be electrically interconnected to a greater degree than now prevails and that . . . new stations when built shall be of large size and high efficiency. It does not mean that all of the power developed can be disposed of when the station is completed. . . . Large-scale interconnection means a less capital investment, a lower operating cost and a greater reliability of service than can be secured with local groupings or with isolated stations."

It is not proposed to combine the power companies into an octopus; each retains its identity and independent existence. The plan is so to connect them that they will do business at lower cost and will render more reliable service. All are subject to public regulation, either by the nation or the states, or both. Their rates are fixed by governmental commissions on the basis of cost, therefore will be lower as cost is reduced. Federal or state commission holds them to continuity of service, to which interconnection of their systems contributes. In case of mishap to any generating station or to the power line leading from it, the current from another station supplies the customers who would otherwise be left without power or light. How is the public hurt by such an arrangement? Is it not rather greatly benefited? How does it suffer by having the several companies work together in serving it rather than work in isolation, one with a surplus forbidden to sell it to another which has a deficiency of electric energy?

A great propaganda for public ownership of power plants is under way in the State of Washington, and those who conduct it fear the effect on public opinion of the efficiency that would be added to private enterprise under public regulation by the superpower plan. The system has been well-nigh perfected on the Pacific Coast, for the federal power commission says that "only four gaps with a total of 25 miles require to be closed in order to have an interconnected system along the Pacific Coast reaching from British Columbia to Mexico, a distance of 1,400 miles."

Customer Ownership Progress

No single development has done more toward improving public relations than customer ownership. Electric light and power utilities that have adopted this policy enjoy a degree of public confidence that is reflected in their stability in the community. Numerous examples can be pointed out where the public has rallied to the support of a utility in which it was an investor. Commenting on this stability, The Manufacturer says:

Industry is stabilized by eliminating "hazard" for wage earner and investor.

Some big employers are adopting a form of unemployment insurance that "guarantees full pay for not less than forty-eight hours per week in each calendar year," unusual circumstances excepted. Thus is the wage hazard practically eliminated.

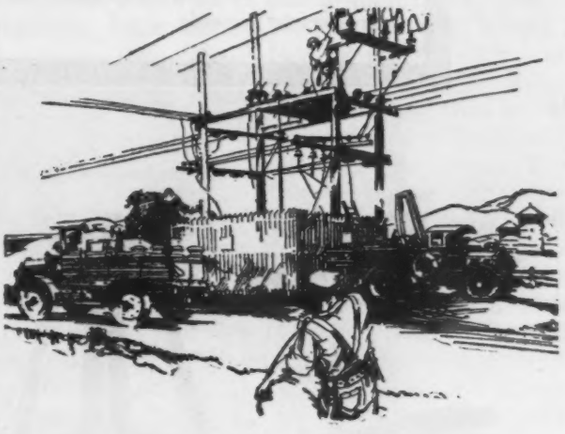
The dividend earning power of investments has been stabilized through the plan for consumer and employee ownership of the stocks and bonds of great industrial organizations. With a job insured and with dividends insured, workers and investors in an industry are not good subjects for labor and political agitators.

The customer ownership idea was pioneered in 1914 by the Pacific Gas and Electric Company of San Francisco. Today this company has 29,182 stockholders, 79.6 per cent of whom live in California.

In 1915 the Byllesby Company made 326 sales of preferred stock; 1923 will show some 20,000 sales. During the nine-year period the total number of sales was 78,465, representing 417,506 shares of stock, while 62 per cent of the 5,408 Byllesby employees are shareholders in the company properties.

The Commonwealth Edison Corporation in eleven months of 1923 sold approximately $5,500,000 preferred to customers and employees. Since September, 1920, about $12,000,000 preferred has been sold to 28,000 customers and employees. Alabama Power Company sold over $5,000,000 preferred stock to customers in the last two years; Consumers Power Company sold over $5,000,000 to 9,600 Michigan residents. The Public Service Corporation of New Jersey offered 50,000 shares preferred to customers March 1, allotments not to exceed twenty shares, and on first day 18,947 customers subscribed to 75,174 shares. It is estimated that today more than 2,000,000 people own the securities of public utilities of this country.

These examples illustrate how industry is stabilized and real "public ownership" established without burdening taxpayers. Public utilities have always been pioneers.



Extending electric service to the farms

Every farmer who does not now have the benefit of electric service naturally looks forward to the time when he, too, by the turn of a switch, will be able to command for his work the energy of distant waterfalls and electric stations.

Practical difficulties have delayed farm electrification. Even where high-voltage transmission lines have been carried through agricultural sections, the farms are often so widely separated as to make economical electric service impracticable. To build a substation to serve a single farm costs nearly as much as one to supply a hundred farms.

The farmer's problem is to get electric service at a cost low enough to make it profitable for him to use. The utility company's problem is to supply the service at a cost that will enable it to pay a fair return on the money invested.

This joint problem is now being studied by a committee of representatives of the U. S. Department of Agriculture, American Farm Bureau Federation, American Society of Agricultural Engineers and the National Electric Light Association.

TUCSON GAS, ELECTRIC LIGHT AND POWER CO.

A sample of advertising from one of the Arizona newspapers showing what the utilities are doing to build up better public relations.

THIS is one of 20 pumping plants irrigating 1,320 acres under intensive cultivation in Kern County, Calif. It is located on a ranch belonging to Herbert C. Hoover. Three years ago this productive section was pasture land supporting one head of cattle to each five acres. Agricultural development in many sections of the West is dependent upon electric pumping.

How the Power Company Aids Farm Land Settlement

By Al. C. Joy
Advertising Manager, San Joaquin Light & Power Corporation, Fresno, Calif.

CALIFORNIA is faced with the problem of bringing under cultivation its millions of untilled acres. The power companies, by furnishing power for irrigation, have done much to further this development. Now they are undertaking the task of bringing new settlers into the states.

IN the development of California two problems must be solved. First of these is to establish permanent prosperity upon our existing farms; second is to bring our raw lands under profitable cultivation.

California is essentially an agricultural state. Mines give of their treasure but once; oil wells start on their way to exhaustion with the first barrel of their yield; the end of our timber forests is even now in sight. The wealth of farm lands is inexhaustible. The civilization building in the Golden West will be great and lasting only as man takes advantage of God's bounteous gifts, and only as he assists and anticipates nature's work by his initiative and ingenuity. Our towns and our cities of tomorrow will be great only as the vision of today becomes reality; and that vision sees every acre of tillable California land green with the fruits of the soil.

California must always pay devotion at the altar of the great trinity of agricultural success—soil, climate, and water. The soil is unsurpassed for fertility. The climate is ideal if one's sole conception of life is merely to live; and the climate, too, gives us a monopoly in many lines of production, if our conception of life is also to work. The raisin growing monopoly of the San Joaquin Valley is after all simply a monopoly of perfect raisin-making climate. Without water, soil and climate are an almost valueless combination. Water can be had only as we ourselves place it upon the land. This has been done, and in this work which has meant the building of the world's richest potential agricultural empire, the power companies have played, are playing, and will continue to play a tremendous part.

The San Joaquin Valley's irrigational development grew from the vision of two men. One of these was M. J. Church, a pioneer of the seventies, who not only saw the possibilities of gravity irrigation in bringing valley lands into intensive cultivation but built the first canal that brought from the foothills to the plains the flood waters of our rivers. The other man is A. G. Wishon of the San Joaquin Light & Power Corporation, who put electric power pumping to work upon those lands which the gravity irrigation systems could not reach.

The first electric pumping in the San Joaquin Valley began more than a quarter of a century ago on the orange lands near Lindsay. Here all irrigating was done by pumping with gas engines. Wishon built a power line. He talked power pumping to the growers. They were skeptical. They had to be shown, and they would not invest a penny in power installation until they were shown. Wishon borrowed money to buy equipment for farm pumps. He put on a demonstration and then sold the power plants to the growers on easy payments. From that beginning with twenty-five installations power pumping in California has progressed until today the San Joaquin Light & Power Corporation is irrigating more than 400,000 acres of land, with nearly 6,000 farm pumping installations. The Southern California Edison Company with more than 9,000 pumping consumers is irrigating 700,000 acres. The Pacific Gas and Electric Company is irrigating 600,000 acres. The Great Western Power Company is irrigating 190,000 acres, the Southern Sierras more than 66,000 acres. Approximately 200,000 acres are irrigated by other California power organizations. There are millions of additional California acres, just as fertile, that may be brought to profitable cultivation by electric pumping. The power companies stand ready to place power upon these lands.

This is only one factor of the power companies' aid to farm land settlement. It is not enough that the California farmer should have merely soil, water, and climate to guarantee his success. He must have the additional incentive of a happy and contented home life, and this he can have because electricity makes possible city conveniences, comforts, and labor-saving devices in any country home. Thousands of California farm homes are electrically lighted. Many are electrically heated, many equipped with electric ranges for cooking, electric refrigerators, electric appliances of every character. The farmer's wife is freed of household drudgery by electrical servants. The farmer himself is no longer a slave to back-breaking labor. Dairies are operated with electric milking machines; separators, churns, feed grinders, and other small machinery are electrically operated. Poultry farms are equipped with electric incubators and brooders, and even the hen herself has her electric light to lengthen her day and increase her egg production.

Let me, however, emphasize that the power company is not working so much for the development of a great farm power load for its own benefit as for a great general development for the benefit of all California. Ninety-nine per cent of the power companies of America have no farm load whatever. We of the

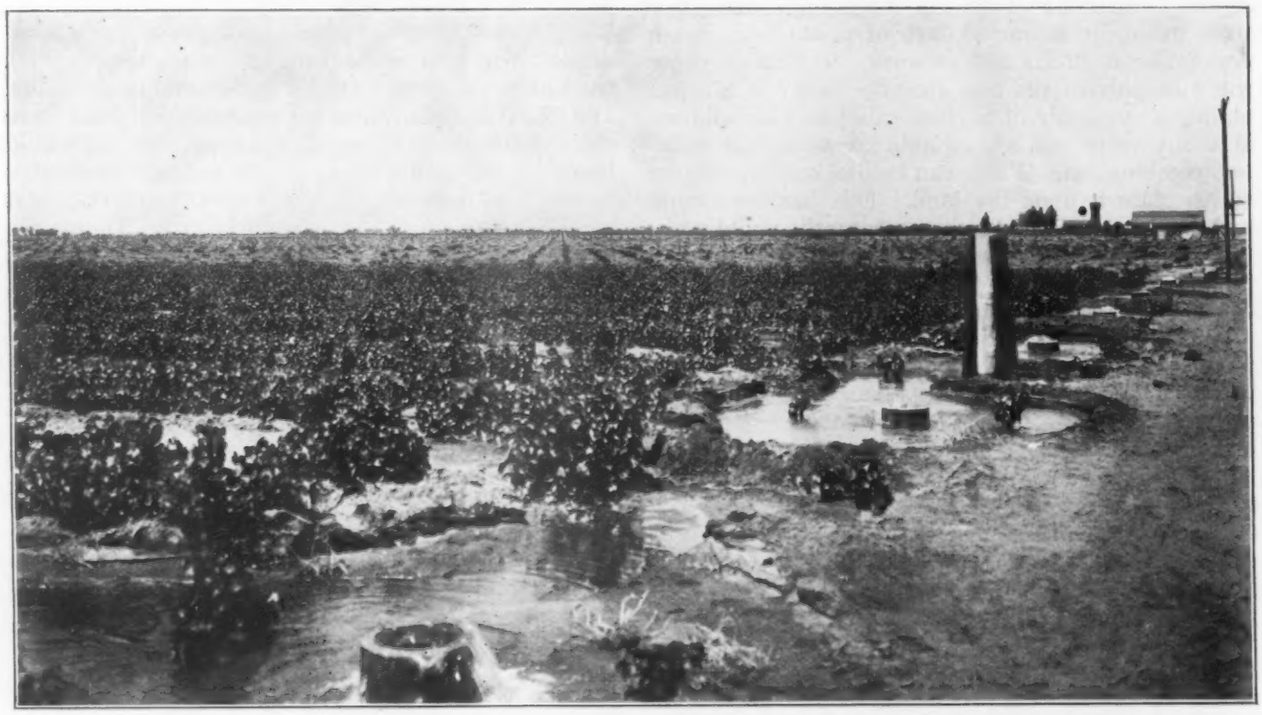
California power companies may in all modesty therefore boast of our accomplishments in this direction and take unto ourselves some credit for the rapid growth of agricultural California in recent years. Not only have we brought new lands into settlement, but we have made farm life itself attractive.

We have contributed indirectly, too, in tremendous measure to farm upbuilding and prosperity. Millions of dollars of California's annual income is derived from perishable products. These must be shipped in refrigerator cars. The great ice plants necessary in this refrigeration are electrically operated. The creameries, packing houses, canneries, byproduct factories, cotton gins, oil mills, flour mills, and scores of other industries without which farming could not be profitably pursued in California are today numbered among electricity's contributions to agricultural success.

The farm pumping load is a big load, but it is from our point of view a factor of development, not development itself. If the power companies were compelled to depend upon it alone they could not exist. It is seasonal; its demand is for a few weeks only. During the balance of the year power plants would necessarily remain idle if there were no other power uses. But the development of agricultural California means the development of an industrial California. It means bigger towns, better towns, more manufacturing, more demand for a steady use of power that will keep the wheels of our generators turning and thus give us the evenly balanced diversified demand necessary to economical and efficient operation. Frankly, we are thinking in terms of self-interest, and self-interest should always be considered not on the basis of how it may be advantageously served now, but how it may be served to the greatest ultimate advantage. Self-interest should not be confused with selfishness. We are not selfish. We know that as California develops, as industry assumes greater proportions, a share of all prosperity will be ours. That, of course, is what we are after. But every other business institution and every other individual will benefit as well.

At the beginning of 1919, immediately after the close of the war, the San Joaquin Light & Power Corporation found itself with 2,000 applications for power service, of which 1,200 were for farms. The power industry had been unable to keep up with the demand. In this respect it was no different from any other industry. The nation demanded men and materials, and industry patriotically marked time. But with the war over we wanted to meet that demand. We needed power houses, transmission lines, men to do the work; we required a big construction and financing program. To get the materials it was even then necessary to show to the government that we were entitled to priorities. First of all we sought to establish that power service is a basic industry. Granting that agriculture is the real basic industry, agriculture in the San Joaquin Valley depended very largely upon electric power. Therefore even as agriculture itself is basic, electric power service is basic.

Analyzing the 1,200 applications for agricultural service we discovered that 600 of them were for the development of new farm lands, requiring new homes, barns, buildings, fences, and all farm equipment. Analyzing still further we found that in Fresno County there have always been approximately two homes in the town for every home in the



This land of the Associated Vineyard Company, formerly devoted to grazing, has been made productive by the application of water pu mped electrically.

country, and we have found since then that this is the ratio in practically every farming community of our state. It was apparent then that when we had rendered service to the 600 new farms we would be called upon to render service to 1,200 new homes in the cities and towns. Our business therefore would benefit by 1,800 new services. But it is not our business alone that benefits. The realtors have perhaps figured in that same period in 1,800 deals. The cost of the average in-town home in this locality including the building site, is $6,000, and for the country home, without the building site, $5,070, or a total building construction program of $10,242,000. In such a building program every dealer in materials, every trade worker shares; every merchant gets additional business through the population increase. There must be a certain amount of commercial construction, new stores, new factories necessary to handle the product of the 600 farms and to supply the wants of the increased population. Here again there is business for all in the community, and once again the individual welfare of each of us is benefited.

This is cited to show that the power companies in aiding farm land settlement are aiding, too, in the development of towns and cities. They are not confining their activities to power extensions or installations. They are trying to aid right now in the solution of the two problems confronting us in state development.

California has the lands; California needs the settlers. But it would be a mistake indeed to bring settlers to our lands without working out first a balanced plan to guarantee that they will be assets rather than liabilities. Many of our farmers, particularly in the San Joaquin Valley, are not prosperous today. The reason for this is that they have largely quit farming to become specialists in one crop production. The man with one crop faces constantly the danger of adverse weather conditions, overproduction, pest visitations, business depression. One bad year may set him on the red ink side of the ledger, and he suffers the next year, no matter how much conditions are changed for the better, through the necessity of paying off the deficit.

I have said that the power companies to operate successfully must have a balanced load so that their generators will be in full operation the year round. This balanced load depends upon diversity in the use of power. Farmers should take a leaf from the power company book and introduce diversity into their operations.

Through our field men, our district managers, our executives, and all members of our organization having contacts with the farmers, we are preaching diversity of production as the one means of stabilizing the prosperity of our agricultural communities.

The problem of settling our raw lands is still to be solved. California wants the small farmer who is practical. We can show him the possibilities of diversified farming, but we must also be able to show him some one crop that gives promise of his biggest and most profitable return. At this particular moment my company is seeking to tell the world that the great agricultural opportunity in the San Joaquin Valley is in the growing of cotton. Out of the disastrous experiences in growing cotton in the Southwest three or four years ago valuable lessons have been learned. By those lessons we are guiding our present cotton growing activities in the San Joaquin Valley. We know the kind of cotton to grow. We know the importance of getting the best seed. We have learned how to plant it, how to care for it, how to irrigate it. The San Joaquin Valley produces as fine quality of cotton as is grown anywhere in the world. It produces prolifically also, the average yield being in excess of one bale to the acre.

It is declared by certain economists, who have apparently overlooked the possibilities of cotton growing here in the West, that America not only must cease exporting but will soon be under the necessity of importing from Egypt and India to take care of our own requirements. The price of cotton is up, and there is every indication that it will remain up for several seasons. In California we can produce quality and quantity. We can irrigate when we please; we are free from the boll weevil, which apparently does not exist in a dry climate such as ours; and we have millions of acres of adaptable raw land waiting for cultivation. The world's cotton production averages from 21,000,000 to 22,000,000 bales. A half million bales one way or the other would not materially affect the total; but 500,000 additional San Joaquin Valley acres planted to cotton, and thus brought into profitable production, would mean a tremendous increase in population, in industry, in prosperity, in development. The power companies are ready to irrigate this cotton, to give the cotton grower the electrical home in the country, to furnish power for gins, and for factories that in fabricating his product will provide him a home market.

Again you will say, how does this apply to my subject? It applies to the extent that once more thinking in terms of general Valley growth rather than in terms of electric power, the power company is urging the planting of cotton. We have gathered statistics which we are placing in the hands of every interested person. We have inserted advertisements in twenty-eight leading newspapers of the Southern states, stating that practical men with enough capital to start can make money growing cotton in the San Joaquin Valley. We have asked in this advertisement that those interested should communicate for further particulars with us or with the secretaries of the Chambers of Commerce in various Valley towns. The response has been remarkable; inquiries already reach into the hundreds. To inquirers we are merely telling the general story. We are not selling land, nor are we recommending to them any particular tract or particular locality. We are pointing out the particular attractions we have to offer and the availability of good land at prices ranging from $75 to $150 per acre.

The power companies of California are interested in farm land settlement. They are doing their share to aid in rural development. They will always be found ready and willing to cooperate in any constructive program for the good of the state as a whole.

The Electrical Jobber's Stores Department

By P. W. Todt
Stores Manager, Western Electric Company, San Francisco

THIRTY-FOUR cents of each gross-profit dollar taken in by the jobber goes for the support of this important phase of his organization. With extraordinary service being used more and more as a means of soliciting business, the tax on the stores department is increasing. Only with the closest cooperation between the jobber and his trade can this problem be solved.

IN considering the problem of the electrical jobber's stores organization, it would first be fitting to review briefly the reasons for the existence of the electrical jobber. His fundamental function is the filling of an economic need in distribution from the manufacturer to the retailer and user. In performing this service he accumulates a variety of articles and places them in the hands of the trade much more economically than can the individual manufacturer. Therefore, he reduces expenses and helps solve the problem of the manufacturers to find outlets for their material, thus permitting them to concentrate on production.

The middleman will continue to exist just so long as he fills an economic position in the business world; but should his cost of marketing increase so that it would equal or exceed what it would cost the individual manufacturer to distribute his products or if the system of distributing through the jobber causes unnecessary expenses to be added to the cost of merchandise, then he is no longer serving a need, and will be discarded.

It is therefore the jobber's duty, not only from a business standpoint but also for his own self-preservation, to eliminate all unnecessary expense from the cost of operation and to guard against propaganda for his elimination. It is well known that at the present time there is considerable discussion on this subject, but the jobber's position can be maintained if he continues to fill his economic need without placing too great a burden on the cost of distribution.

Service is the biggest problem of the stores organization. Service in the broad sense of the word covers the entire operations of the jobber; but when it refers to the stores department it means the prompt and efficient handling of a customer's order from the time it is received until the good are finally received, accepted, and paid for by the customer.

Here on the Pacific Coast the stores department is considered to be of as much importance as the sales department. The stores organization of today requires at least as much expense as the sales department, which condition was not true a few years ago. In fact, if it continues during the next five years at the same ratio as it has during the past five, it will be considerably more expensive to operate than the sales. This is one indication of the increase in the demand for service.

The problem that confronts the stores department is the setting of a standard of service that will be satisfactory to both the customer and the jobber. Just now we have no such standard; in fact, we are proceeding actually beyond the limits of economy and necessity, which condition, if continued, will leave nothing for the jobber as compensation for services rendered.

Six years ago, it was considered good business policy to spend 25 cents in stores work for every dollar gross profit received. Today, many jobbers are spending 34 cents out of every such dollar, and yet there has been but a slight increase in sales operating ratio and little or no increase in financial and administration ratio.

It will be noted from this that the stores department of today is taking a toll of an additional nine cents out of every dollar of gross profit, or an increase of about 36 per cent over the same expense of six years ago, and this in spite of the fact that there has been a decrease in the gross profit rate. The result is that net profits are gradually vanishing.

Extraordinary service is today being used more and more as means of soliciting business until it is gradually becoming as dangerous as cut-throat price competition. I do not believe that the customer is entirely to blame for this condition, for I think that a certain amount of the responsibility rests on the jobbers and their salesmen. Salesmen have a tendency to go out and lead customers to feel that regardless of how unreasonable their demands are or what the cost may be, the jobber can fulfill them. It can easily be seen that this is not only expensive to the jobber but also harmful to the dealer and contractor. It leads the customer to become lax in properly maintaining his stocks, because he knows that if he runs short of an item, he can telephone or telegraph such an order and request that it be shipped at once. Orders of this class are usually placed in a hurry, and little consideration is given to the quantity, resulting often in a loss to the dealer because he has not checked his quantity discounts. Nor has he inventoried his stock and tomorrow he may find another item short, which means a second rush order, with two handlings by the jobber where one would have sufficed, and two freight and cartage charges for the customer when both items would have cost him no more for freight and cartage than the one.

Another bad effect is the tendency to become careless in watching his entire stock. Such a dealer

or contractor is interested only in his shorts, and neglects the bulk of his stock and his frozen merchandise, which, if thawed out, would furnish funds which could be used to advantage in his business.

It has been my experience that the dealer and contractor who has few demands for special service is the one who follows a systematic method of ordering, and who anticipates his requirements sufficiently in advance to avoid rush shipments. When placing an order, he checks his entire stock, thereby eliminating numerous orders, and not only saving needless expense for the jobber but also for himself. His material arrives in one shipment, with but one shipment to check and warehouse, and one invoice to check and pay, in place of a number of small ones.

The sales organizations are continually emphasizing new ideas to our customers and new methods of selling merchandise and the credit departments are spending considerable time in instructing them in proper financial and collection methods, but very little educational work, if any, is being done to help the contractors and dealers in one of the most important jobs—that of properly maintaining stocks of merchandise. The difficulty of giving service will be lessened when the dealers and contractors are educated to realize their responsibilities in maintaining stocks in such a way that they are in a position to give the proper service to their customers and not pass the entire burden on to the jobber.

RESPONSIBILITIES OF SALES DEPARTMENT IN CONNECTION WITH SERVICE

1. **Develop within the organization the thought of selling only that which is regularly carried.**
2. **Where possible, direct orders for specialties and parts not carried by the house to the concern which regularly carries them.**
3. **Discourage "Special" and "Rush" orders.**
4. **Strive to increase the size of order and particularly to order in cartons and standard package quantities or multiples.**
5. **Endeavor to get the order complete as to the various items and material necessary for handling the work to be performed.**
6. **Educate customers to order stocks systematically and anticipate their demands, thereby eliminating "Rush Orders" and lessening the "Return Goods" evil.**
7. **See that orders sent to your house are properly written and that all information is complete as to the description of material and other instructions necessary to the correct handling of the orders.**

I have in mind a dealer who follows a definite plan for stock ordering and who regularly, on the twenty-fifth of each month, sends in an order of from 50 to 75 items to be shipped on the first of the month. It is plain from the variety of the items appearing on his order that he has carefully checked his stock. When his requisition is received there is sufficient time to assemble and pack it, to locate and pick up shorts and non-stock items, and to make one complete shipment; and therefore he has to place few orders during the month, except for very special material.

I know another customer who is just the reverse. On one day we have received as many as three telegrams requesting express shipments of such staple lines as rubber covered wire, sockets, and lamp cord. It is not difficult to decide which of these two accounts is the real merchant who is making a profit from the business.

The dealer or contractor who demands extra service not only suffers losses within his own business, but creates needless expense for the jobber, who must compensate his own increased expense by higher prices to the trade. I sincerely believe that most customers do not realize that the expense for extraordinary service runs to a considerable amount. If it were brought forcibly to their attention as well as to the notice of the salesmen, so that they were shown that the discontinuance of this class of service is a saving to them as well as to the jobber, and if the salesmen would stress more the necessity of the dealer or contractor doing a real merchandising job, and less on their firm's willingness or ability to ship an order immediately, we would not be facing the dangers which threaten the electrical jobbing business today.

I do not want to leave the impression that the jobber should not be in a position to give immediate service on emergency orders; but the requirements should be confined to real emergencies that have been caused by conditions that could not be anticipated.

Another important problem of the stores department is material returned for credit, which return is usually caused through no fault of the jobber. The general practice of allowing indiscriminate returning of material places considerable additional expense on the jobber as well as on the customer, and is due to the lack of systematic ordering. It certainly piles up expenses very rapidly. The customer must pay the expense of freight, the cartage from the freight sheds to his store, the unpacking and checking of the material and the bills for it, and also the paying of the invoices on the incoming shipment; and on top of all this, he has the same expense, plus some additional outlay, for the return of the material.

The jobber has incurred the expense of handling the order through the clerical and warehouse departments, and has paid for the cartage to the freight sheds on the outgoing shipments. On the return shipment, there is the expense of handling, which includes cartage from the depot to the warehouse, the checking of the material, the inspecting and placing it in condition for resale, the clerical work of issuing the credit and of placing it on the books. The cost of handling one of these transactions is usually more than double the cost of making a similar shipment that is not returned.

The regrettable part is that no one is benefited by all this work and no profit for the service rendered

has accrued either to the customer or the jobber. To reimburse this loss in handling it requires over double an amount of new sales; in fact, it can be said that the loss is never really recovered, because the orders that follow may never have been influenced by the return shipment.

From the angle of stock consideration, also, this problem has its evil. When an order is filled, it naturally follows that the jobbers must replace the shipment and order replenishing stocks from the manufacturer. When the return shipment is received it often means an excess of requirements, thus increasing the investment and carrying charges.

The handling of such items as returned washing machines, ranges and other large appliances is exceptionally expensive. In many instances they require unpacking, testing, and recrating; and they are often received in such a scratched or marred condition that they must eventually be sold as second-hand material.

Items that have been made up for a special order or brought specially from the factory are causes for heavy losses when they are returned. Every jobber has some corner in the warehouse known as the "junk room" or special stock room, which contains merchandise amounting to thousands of dollars for which there is no regular demand, and which must usually be sold for junk.

All these losses must be considered as part of the expense of the business and must be compensated for, so that the natural and inevitable result is the adjusting of the prices to the trade to meet these expenses. We will always have the problem of returned material to contend with; for even the best-managed concern does not find it possible to gage stocks so that slow-moving or overstock items are entirely eliminated. However, I believe that the greater part of the returned goods evil can be eliminated by giving more thought to ordering. Again we find the necessity, as in the case of the service problem, of educating the trade to become better merchandisers and to give more care to their ordering. By doing this, the dealer or contractor can plug up one of the biggest profit leaks in his business.

The jobber's salesmen can also play an important part by carefully studying the customer's requirements and refraining from selling articles for which there is little chance of the customer selling or for which there is no demand in that territory. The days of high-pressure peddling have passed and the successful salesman who builds for a solid and lasting business is the one who studies and knows the requirements of his customers and territory, and applies his sales efforts accordingly.

In discussing these problems I have endeavored to look at them from all angles, always having in mind a closer cooperation between the jobber and the trade that will considerably reduce these unnecessary expenses and reflect a benefit to the industry as a whole and to the ultimate consumer. If the compensation demanded in distributing merchandise is not in keeping with the services rendered, then the system will fail, for after all, the final judge is the consumer.

Telephone Recognized as Factor in Public Relations

A telephone conversation furnishes a means of contact with the public that may be used either to improve public relations or to injure them. With this thought in mind The California Oregon Power Company has devised a plaque to be attached to the mouthpiece of every telephone on its system as a constant reminder of the necessity for care in speaking over the telephone. A reproduction of the plaque is printed herewith.

The plaque is a reproduction of the company's symbol, the keystone. It is made from plated sheet brass, the wording being etched on the plate. The background is blue enamel. The brass, of which the plaque is made, in addition to presenting an attractive appearance, eliminates the chances of the emblem being destroyed by thoughtless persons.

Plaque to be placed on mouthpiece of telephones on The California Oregon Power Company's system.

The idea originated during a conference of members of the organization last October. At that time an invitation was extended to those present to suggest suitable wording for the plaque. The "prize" was won by W. H. Crawford, manager of the new industries department of the company.

The California Oregon Power Company is taking an active part in the "Smiles Campaign" of the Pacific Coast Electrical Association. The idea of the telephone plaque, however, was devised before the "Smiles Club" was announced. It ties in excellently with the general campaign for courteous service that is being staged in California at the present time.

Staging a Successful Illumination Sales Campaign

By H. H. Allison
Illumination Engineer, Pacific Gas and Electric Company, San Francisco

COOPERATION has become the watchword of the electrical industry. Permanent cooperative agencies—local, state-wide and national—have been set up within its ranks for the purpose of solving some of its most pressing problems. So successful have these been that periodic sales campaigns in which central station, manufacturers, jobbers and contractor-retailers have united for mutual benefit, are being developed to cover particular phases of the business. The results of one such campaign are described in the following article.

During the fall of 1923 the sales department of the Pacific Gas and Electric Company conceived the plan of staging a campaign with the cooperation of jobbers and contractor-dealers in San Francisco for the purpose of selling better show window and interior illumination to the merchants of that city. The central station was actuated by the desire to increase its connected load; the jobber to sell more equipment and the contractor-dealer to derive the profit incident to the installation of the equipment. The plan as evolved was that the power company should manage the campaign and furnish five salesmen each of whom would represent one jobber. The jobber was to assist in the training of the salesmen, furnish literature and sample equipment. The contractor-dealer was to estimate the jobs and install the equipment which the salesmen sold. Those cooperating in the campaign consisted of the power company, five jobbers and eighteen contractor-dealers.

How well the campaign succeeded is shown by the following:

Number of stores surveyed	2,404
Number called upon and given talks on better lighting	1,367
Number sold better lighting equipment	268

Expressed in dollars and cents the results accomplished were:

Total amount of fixtures sold	$12,669.31
Total amount of wiring sold	8,220.24
Total amount of lamps sold	2,776.99
Total merchandise sold	23,666.54
Additional connected load gained	274,095 watts
Estimated monthly revenue (conservative)	$1,745.95

The campaign was scheduled to operate for a period of twelve weeks with two weeks given over to training the salesmen, one week of actual school

The salesmen were instructed in an improvised class room equipped with all classes of lighting units.

work and the second of practical application in the field. The general plan of procedure outlined follows:

1. Selection of five experts from lighting industry to act as advisory board in training salesmen and giving them technical information when required.

2. Survey of the smaller retail stores in San Francisco and the listing of 1,500 actual prospects served by the power company having poor show window or interior illumination.

3. Employment of five salesmen who would be suitable for selling better illumination.

4. Establishment of a school and outlining of a course of study on illumination wihch would be sufficient to enable them to sell better lighting methods and proper equipment.

5. Printing two series of sales letters, 1,500 of each, which were addressed to the prospects over the power company's name.

6. Printing 1,500 prospect forms to be given to the salesmen with the prospect listed.

7. Dividing the city into business districts for the purpose of systematic work by the salesmen.

8. Devising a systematic method of directing the salesmen's activities and keeping a record of prospects and follow-ups.

The advisory board selected consisted of the following: illumination engineer of National Lamp Works, illumination engineer of Edison Lamp Works, representative of Westinghouse Electric & Manufacturing Company, representative of National X-Ray Company, and representative of the Pacific Gas and Electric Company.

The survey of the stores to secure a list of 1,500 prospects was no small task. In a period of two weeks over 3,000 stores were visited by two men. The natural shopping centers facilitated the creation of districts and considerably lightened the task of keeping records and handling the salesmen. It is estimated that 95 per cent of the stores in the city were covered by the survey.

A sample of the survey card, which showed the firm, the address, and the class of business is reproduced herewith. The salesman, upon visiting the store, would fill in the remaining data and, if the prospect was good, would make a sketch of the store interior and windows on the reverse side.

Considerable discretion was used in choosing the salesmen. Candidates were first interviewed by the personnel department of the power company and the eligibles were then turned over to the sales department for further questioning. They were passed upon by four individuals before being employed.

The records of the five men finally employed are interesting. Salesman A had a varied sales experience but practically no knowledge of electricity; B and C were recent university graduates in electrical engineering; D was a former power salesman; and E had some technical training and some illumination experience. The results of the efforts of these men follow:

Salesman	No. of Prospects	No. of Sales	Mdse. Sold
B	275	85	$7,172.95
E	267	59	5,517.83
D	275	55	5,010.70
C	275	37	4,470.25
A	275	32	1,494.81

Salesmen were assigned by lot to represent the manufacturer's lines as handled by the jobber.

Great care was exercised in the training of the salesmen. Suitable quarters were secured from the power company. A room was equipped with desks, a drawing board and a blackboard. Typical specimens of interior and show window lighting equipment were hung in the room. In this manner it was possible for the prospective salesmen to visualize the present correct lighting practice. The training itself consisted of one week of lectures and demonstrations and one week of practical application. The various manufacturers furnished bulletins which were used as text books and lighting experts delivered lectures. While the training was intensive to a marked degree, the results achieved demonstrated that it was highly effective.

Following the lectures, the salesmen were sent into the residential districts for a week to try their sales arguments on small grocery stores and markets where it was felt that they would meet with the greatest sales resistance. After this they were sent into the busier districts.

The procedure of the salesmen as set down by the advisory board follows:

1. Secure name of prospect and list on form.

2. Write two strong sales letters to prospect in week preceding salesman's visit.

3. Visit five prospects per day in addition to follow-ups.

4. Interview manager of store (the salesman represented himself as power company lighting expert).

5. Survey of store lighting equipment and recording information on blank. If considered good prospect sketch is made of store and date of next call noted.

6. Design proper light system and secure bid from one of cooperating contractor-dealers.

NO._____ DATE _____ SALESMAN _____ DISTRICT _____

FIRM _____

STREET _____ NO. _____

KIND OF STORE _____

CLASS 1 _____ 2 _____ 3 _____

SEE MR. _____

INTERIOR	WINDOW
( ) BARE LAMPS	( ) BARE LAMPS
( ) OLD FIXTURES	( ) OLD FIXTURES
( ) INSUFFICIENT ILLUMINATION	( ) INSUFFICIENT ILLUMINATION
( ) WRONG TYPE ILLUMINATION	( ) WRONG TYPE FIXTURES
	( ) WRONG LAMP FIXTURES
No. FIXTURES _____	No. FIXTURES _____
F. C. INTENSITY _____	F. C. INTENSITY _____

PARTY INTERESTED IN ILLUMINATION— WINDOW _____ STORE _____

RETURN LATER _____

NOT INTERESTED _____

REASON GIVEN _____

REMARKS: _____

MAKE SKETCH ON REVERSE SIDE

Reproduction of the survey card used by the salesmen who called upon the prospects. The reverse side of the card was used for making a sketch of the store interior.

PERIOD FURNITURE DISPLAY
517-19 SUTTER STREET
SAN FRANCISCO, CALIFORNIA

October,29,1923.

Pacific Gas & Electric Co.
San Francisco Division

Clement Street Merchants Association
MEETING ROOM AND SECRETARY'S OFFICE
308 FIFTH AVENUE

Sanborn, Vail & Co.
STATIONERY, ENGRAVING, PICTURES
FRAMES AND ARTISTS MATERIALS
557-563 MARKET STREET
SAN FRANCISCO

Sharp & Dohme
Dispensing Chemists
609 Mission Street
San Francisco, Cal.

Dec. 17,1923.

Pacific Gas and Electric
445 Sutter St.,
San Francisco, Calif.

Gentlemen :

Last month

service of your Lighting

with my show window illu

called on me and advised

to install certain fixt

closely and

HAROLD HERSCH
Dry Goods & Men's Furnishings
5455 GEARY STREET

SAN FRANCISCO Nov. 19, 1923.

SUNSET HARDWARE CO.
1518-1521 NINTH AVE.

Pacific Gas & Electric Co.,
445 Sutter St.,
San Francisco, Cal.

Gentlemen: Attention: Mr.A.

Replying to your inquir
the results of my new electr
system as laid out by you
only greatly improved the a
the store but has made sale
through better showing of

Our Saturday night bu
been noticeably better th

Yours

SUNSET

By

Illumination Department,
The Pacific Gas & Electric Co.,
445 Sutter Street, City.

Gentlemen:

Upon advice of your Mr. Hancock, we changed the lighting system in our store, doubling our lighting inside and replacing drop window lights with X-Ray reflectors and the result has been entirely satisfactory and well worth the expense incurred.

Merchandise which previous to the change in window lights looked dead and insipid now seems to stand right up and it seems that hardly a person passes the store in the evening without looking at the goods in our window.

We are well pleased with your help in this connection and particularly do we appreciate the service rendered by your Mr. Hancock.

Very truly yours,

Harold Hersch

ric Company.

e in advising that your Mr.
in estimating the lighting
and we find after installation
timate given by him has been
lighting arrangement as he planned
ur requirements perfectly.

his suggestion, it is
ing adequate

LAVEZZARI

Nov. 7, 1923.

Gas & Electric Co.,
ter Street,
Fisco, Cal.

Attention: Mr. C.A. Russell

In reply to your inquiry con-
e effect of the color lighting
recommended for our show windows,
ed to state that our sales have
reased. These lights have proved
ve in attracting prospective
our store.

ours very truly,

S. Lavezzari
53 Sutter St.

Many letters, stating the customer's satisfaction with the installations made, were received by the men in charge of the campaign. The above samples give an idea of the diversified character of the concerns that were sold better illumination.

7. Present design and bid and help contractor-dealer close sale.

8. Render a complete report each week of all prospects interviewed and amount of merchandise sold.

The preparation and mailing of the letters was done systematically. Each letter was sent out over the signature of the power company's district manager. Letter No. 1, which was mailed on Monday, follows:

Dear Sir:

Would you occupy a store which had no windows? No, of course not!

You pay a higher rent because of the use of a window. Are you receiving full value for it?

Many windows are valued at one hundred dollars per hour. What are yours worth?

They can be made to earn more dollars every hour by effective lighting methods. One California firm reduced their advertising costs by 50 per cent due to increased drawing power of highly lighted windows. Another firm interested 22 per cent more people in their windows by an expenditure of 8c. more per hour for electricity.

A well lighted store window is never forgotten.

Few merchants realize that the only means a customer has of forming an opinion of merchandise is by LOOKING at it. Therefore, the most important item of a store should be the illumination by which the customer sees the article desired.

The lighting of any store or window may be modern and profit-making by equipping it with lamps and reflectors, designed to flood the display with a soft, warm light which will bring out the quality and color. In many cases, no additional wiring is necessary.

Have you given consideration to the small cost involved in converting your present store and window lighting to a new and up-to-date installation, which will bring ten-fold return in sales?

Letter No. 2 was mailed on Thursday. Its text follows:

Dear Sir:

How many people does your window stop?

The purpose of a store window is to attract the attention of a shopper. Increased light in your windows will induce 50 per cent more people to look at your display. The more people your window stops the greater will be your sales. Attractive display windows will draw the prospective buyer into your store.

The well-lighted INTERIOR will show the true value of your merchandise. Better store lighting will pay you a real profit. People like to trade in bright, cheerful stores and just naturally flock to them. One store recently increased its sales in actual dollars and cents 29 per cent per customer, by no other means than Better Lighting.

Is your store the one out of every three which does not have adequate illumination? Do you know how much light reaches the article you wish the customer to examine? If it is necessary for your customer to turn goods first one way and then another in order to see them, your wares are being hidden by insufficient light and the results you so earnestly desire cannot be expected.

In nine out of ten stores, either the dimness or the glare from a few light sources causes a fine new stock to look like last year's left-overs. Merchants then wonder why so many people pass out of the store without purchasing, and exchange so many of the articles they do purchase. Why not investigate the cause and get the cure—Correct Lighting.

By the expenditure for electricity of an additional small fraction of one per cent of your present operating expense, you can increase your gross sales from 5 to 25 per cent. Will you let us show you how?

The Pacific Gas & Electric Company feels that it is rendering you a real service by calling to your attention these profit-making items. Our lighting specialist will call on you next week, for the purpose of making a survey of your store lighting, and recommending to you the proper design and equipment for your installation.

These letters were found very effective and made the salesman's approach comparatively easy. In one instance a customer called the power company and asked the salesmen to be sent immediately instead of the following week as stated in the letter. Another telephoned that he desired the services of the lighting expert as soon as possible because he had watched his windows and found that they "didn't stop anybody."

Frequently consumers offered suggestions or complaints regarding service or bills. Such names were listed on a special form and turned over to the proper department in the evening.

At the end of each week a progress report was made to those who were cooperating in the campaign. The power company's illuminating sales engineer checked the status of each active prospect. If any had been given up by the salesman, they were listed on a special form and later called upon by the sales engineer. Several sales were made in this fashion.

Frequently customers requested that their own contractor be allowed to make the installation after a job had been sold. While this prevented the cooperative contractors from getting the business, it merely resulted in more dealers being benefited. The goods were sold in any event.

In checking up the stores after new show window or interior installations had been made, it was found that in every case owners or managers were highly enthusiastic over the results. Many letters were received commenting on the installations, some of which are reproduced herewith.

In general, the campaign is regarded as a distinct success. Not only has it paved the way for future sales but it has definitely shown the contractor-dealer that business is at hand if he will go after it. Moreover, it has demonstrated the power of united effort in attaining increased sales.

Results Tell the 1923 Story for the Cooperative Campaign

THE proof of the pudding is in the eating and the test of any cooperative movement is in the results that can definitely be attributed to the movement. The activities in themselves are of no particular value and are not of primary interest to the constituents supplying the funds for the maintenance of the cooperative bureau. Results accomplished are the vital factors.

During the past year the California Electrical Cooperative Campaign has been active and in addition to this the activities have brought results that have meant dollars and cents to the entire electrical industry in California. Work has been carried on in the domestic and commercial fields and along merchandising lines, surprising success having been achieved during the year.

In answer to any question that might be raised as to the practical results of the work done in the domestic field a survey has been made of hundreds of homes under construction to determine just what items enter into the average electrical installation today. In order that a fair appreciation may be had of the steady progress being made in standards of electrical wiring, Table I gives first the figures obtained in the 1923 survey and second those obtained in a similar survey during 1922.

Table I

Year	Lighting Outlets		Switch Outlets		Convenience Outlets	
	Average per home	per room	Average per home	per room	Average per home	per room
1923—22.9	3.98		16.47	2.86	8.84	1.53
1922—20.9	3.84		10.96	2.01	6.39	1.18
Gain 2.0	.14		5.51	.85	2.45	.35

Campaign representatives were called upon by architects for assistance with wiring specifications on fifty-one jobs, twelve of which they laid out in their entirety, acting in an advisory capacity upon the other thirty-nine. One of the jobs laid out was a seven-story nurses' dormitory of 150 rooms; another was a summer resort amusement pavilion. The specifications on these two installations called for 125 convenience outlets in addition to the many lighting

and switch outlets. A third job that was laid out was a private home which was wired in accordance with the Campaign's recommendations for 15 kw. for air heating, 5 kw. for water heating, 7 kw. for electric cooking, 3 convenience outlet circuits and 2 lighting circuits. Still another job laid out was a store building on which the Campaign increased the electrical specifications 50 per cent and after explaining to the architect secured his full approval.

A survey of nineteen apartment houses showed a total of 1,124 rooms, 3,428 lighting outlets, 2,421 switch outlets, and 1,425 convenience outlets. Five other apartments surveyed also showed better than one convenience outlet per room; and still another three-story, twenty-seven-room apartment house with 65 convenience outlets had one or more in every room. One apartment house inspected is a thirteen-story building with 130 apartments, each of which is completely electrically equipped with range, water heater, dish washer, clothes washer and ironing machine. There is also a large electric range in the service kitchen.

The rapid spread of the electrical cooking idea is manifested by six apartment houses under construction in one California city. These will be equipped with electric ranges numbering from 36 in the smallest to 130 in the largest building. Four of these apartment buildings will also have electric water heaters in each apartment.

One building concern which a year ago was putting up apartment houses with one convenience outlet in each three-room apartment is now putting an average of two convenience outlets in each room of every three-room apartment, and they state that they feel the Campaign gave them some very valuable information in calling to their attention the advantages the convenience outlet has to offer.

To secure these results the California Electrical Cooperative Campaign has been following out a well defined policy. It is agreed by everyone in the electrical industry that if a proper number of circuits is provided to amply take care of an adequate supply of outlets, the home-owner will be in a better position to make ready use of electrical appliances. Consequently the logical place to start, in any campaign to increase the use of electricity in domestic life, is with the wiring plans and specifications. To improve standards of wiring, the plan has been to show the importance and value of the outlets—the only visible source of electric power.

The least understood, least appreciated, least utilized outlet—the convenience outlet—was selected as the medium to convey the message to the public. At the time that this work was first undertaken the average number of convenience outlets being installed in new homes was less than one per **home.** During the course of this effort this figure has grown steadily more favorable until today an average of over one and one-half convenience outlets per **room** is being installed in new homes.

One of the principal activities that has aided in increasing the number of convenience outlets that is being placed in new homes has been the displaying of electric homes in various parts of the state. Five electric homes displayed under the care of a Campaign representative and corps of demonstrators were opened for public inspection during 1923. A total of 78,916 persons visited the five homes while they were open.

The homes exhibited, together with their period of display, and attendance were:

Long Beach—Feb. 22 to March 7—13,778 visitors
Fresno—April 12 to April 29—13,387 visitors
San Francisco—May 3 to May 20—15,500 visitors
San Diego—May 17 to June 3—29,025 visitors
Sacramento—June 1 to June 10—7,226 visitors

The first 1924 electric home was displayed in San Jose. The second home that the Campaign is sponsoring, this year, is one located in Hollywood. Publicity for this display started with the groundbreaking ceremonies and every step taken, in the construction of the home, has been marked by some event that has been told to the public through the daily press. The electric home has been wired for a connected load of 57 kw.

The work of educating the public as to the proper methods to be followed in electrifying the home has not been confined to the displaying of model homes. Constructive effort has been employed in acquainting architects, builders and prospective home owners with adequate wiring specifications. Each of these persons called upon by Campaign representatives was supplied with a copy of the Campaign's Model Wiring Plan and Standard Specifications for Residence Wiring. Much stress was laid upon the fact that to erect a home that would be at all modern five or six years from now, the builder should at least provide for the necessary conduit for range and water heater service.

These data were also distributed through the various building material exhibits throughout the state, through the home economics departments of the Los Angeles Examiner and the Los Angeles Express, to particularly interested guests at the electric homes, and to those attending an electrical appliance demonstration held at The Emporium, San Francisco. In addition they were introduced as text on house wiring in the electrical classes of several high schools in the northern and southern parts of the state.

An ever increasing number of builders and realtors is recognizing the value of advertising electrical conveniences, in listing the advantages that feature their homes. The following extracts from advertisements of a large building company and a realtor are examples:

"* * * Rooms are beautifully papered, attractive lighting fixtures, many electrical convenience outlets * * *"

"In planning this apartment building the most modern ideas have been introduced. Electricity will be used for heating, lighting and cooking."

"Many convenience outlets for electric home comforts."

In accordance with the policy of educating the public to demand better electrical standards, the Campaign has been active in standardizing local elec-

trical ordinances. At the beginning of 1923 twelve communities were carrying on electrical construction under ordinances sponsored by the Campaign and during the year eleven more were encouraged to raise their standards. The movements are being sponsored by cooperative gatherings of electrical contractor-dealers in the various communities. The result of the work has been that eight of the ordinances were passed and are now in effect, whereas the three remaining are held in abeyance pending minor changes.

Activities in the Commercial Field

Representatives of the Cooperative Campaign have been active also in developing business in the commercial field. Efforts in this connection were directed toward bettering illumination for store windows and store interiors. In doing this educational work, the Campaign representatives were greatly aided by the portable window lighting display, which was used for the first time early in 1923.

This display, because of the fact that it is capable of presenting to store owners and managers definite results that can be obtained with proper illumination, has been found to be most effective in producing results. Light intensities varying from 18 ft.-candles to 100 ft.-candles can be produced with the portable exhibit which is also equipped to show the results that can be achieved through the use of color screens. When the exhibit is presented to the merchants that have been assembled to view it, the window is trimmed with a complete display of furniture, rugs and drapes.

The first public showing of the exhibit was in San Francisco in January during the Retail Furniture Dealers' Market Week. The window, and a brief explanatory talk, were given the place of honor on the program of one of the meetings. This meeting was attended by 525 members. After one more meeting the display was taken to southern California to commence a tour of the more important cities there. The exhibit was returned to San Francisco in June and was shown at the Annual Convention of the Pacific Coast Electrical Association. It was then started on a tour of cities in the northern part of the state. Meetings to which merchants from neighboring towns were invited, were arranged in thirty-nine communities. During the year the exhibit was demonstrated at fifty-five meetings before an aggregate attendance of 4,761 persons. This does not include the number of persons viewing it at the Pacific Coast Electrical Association convention or at the California Industries Exposition, where thousands of people stopped to investigate the display.

Actual results, which have meant increased business and returns to many branches of the electrical industry, in a number of cases have been noted immediately following the display of the portable lighting exhibit. Over twenty large installations, traceable directly to the stimulus that was provided by the exhibit, have been recorded and the addition of from two to twenty reflectors in smaller stores have been numerous. Some of the larger installations are recorded herewith.

Four jobs in Los Angeles, calling for 560 reflectors, together with the necessary pipe, wire and boxes for their installation, were ordered following the demonstration.

One Pacific Grove furniture store put in 600 units on 12-in. centers.

One Palo Alto contractor reports window lighting work amounting to over $1,000 directly traceable to the display.

The power company in Napa reported two new window lighting installations due to the interest the exhibit created.

A drug store in Hanford, upon recommendation of a Campaign representative, increased its window lighting from eight 60-watt units to eighteen 100-watt units and increased the interior illumination 50 per cent. It now has 40 ft-candles in the window and 15 ft.-candles in the store.

A San Francisco clothing store accepted the Campaign's suggestion and added five units in each of two windows, increased its lamps from 75 watts to 100 watts and added two switches.

A new drug store in Dinuba, under course of construction when the exhibit was there, has been wired in accordance with the suggestions of the Campaign's representative calling for 1½ watts per sq.ft. in the store and 150-watt units on 12-in. centers in the window.

One clothing store in Oakland was equipped with 275 reflectors and 33 spot lights because of the Campaign's exhibit; and in Redding, shortly after the manager of a large local department store had attended the meeting, he ordered 134 new units for his windows.

In addition to these tangible results as evidenced by actual installations there are two other benefits to be directly credited to the window lighting exhibit. First, the immeasurable growth that will come from the seeds it has sown but will develop less rapidly than those cases above mentioned; and, second, the bulk of the newspaper publicity that broadcast the message of better lighting far beyond the narrow confines of the meeting places. Approximately 1,000 in. of this reading matter were secured from some of the many papers interested in the fifty-five meetings, and it is believed that considerably more appeared in the papers than has been assembled.

Merchandising Aids Supplied

Two merchandising campaigns, which consisted chiefly in supplying the electrical dealers with material designed to assist them in the sale of household appliances, were conducted by the Campaign during 1923. The first combined selling drive was held during the first week in June which was designated as "June Bride Week." Dealers were supplied, without cost, with window posters, slogans, newspaper cuts and motion picture slides. A letter was sent to all dealers requesting that they order any material they desired to use. From the replies received, it was possible to determine what newspapers were to receive advertising from the electrical industry. The papers were advised of this business they were to receive and requests were made that they cooperate with the Campaign by publishing the electrical stories that were sent out.

A total of 177 cuts was used for advertising in 193 newspapers and during the week the power companies devoted 2,525¼ in. of space to electrical wedding gift advertising while the retailers carried 1,917¾ in. or a total of 4,443 in. It is impossible to

secure an equally complete and accurate report of the amount of publicity which appeared, due to the futility of attempting to secure copies of all newspapers carrying any; however, there have been assembled 1,007½ in. as a fair example of the volume of publicity which this drive did produce. As for the slides, 74 of these three-color reproductions of the poster were shown in as many theaters.

To stimulate interest on the part of the retailers in the attractive decoration of their windows, eleven cash prizes aggregating $100 were offered for the best window trims, judgment to be based upon photographs submitted. While the number of contestants was disappointingly small, pictures of some beautiful windows were included in those entered in the contest.

Public interest was also aroused by a contest, conducted by a Los Angeles newspaper, that offered to the winner a complete outfit of electrical appliances for her home. Conditions stated that the young lady must agree to be married at a local broadcasting station. The publicity which this plan produced totaled 314¼ in.

It is difficult to lay down in definite figures the actual results that can be directly attributed to such a campaign as "June Bride Week." To determine whether or not the effort was considered justifiable by the retailers, those who were the principal recipients of the benefit, a questionnaire was circulated in fifty-eight towns. The answers to the questions are shown in Table II.

Table II

District	Campaign successful?			Appliances sold as result	Retailers reporting	Should campaign be repeated?		Would similar Xmas campaign be success?		Electrical dealers using material	Other merchants using it	Was material received in time?	
	Yes	No	Doubt			Yes	No	Yes	No			Yes	No
North	25	2	3	401	65	30	....	30	....	55	10	30	....
South	11	13	4	777	135	17	11	27	1	115	48	25	3
Total,	36	15	7	1,178	200	47	11	57	1	170	58	55	3

(Note.) In columns 1, 4, 5 and 8 the results are given by town, the reply of the majority of retailers within a town governing the classification of the answer in the table above, i.e., the majority of the retailers in 25 northern towns voted the campaign a success, the majority of them in two towns voted it unsuccessful, etc.

The Christmas Sales Campaign

The plan followed in helping the retailers during the Christmas season was much the same as that employed during "June Bride Week." Three thousand Santa Claus cutouts, 12 in. high, brightly colored and bearing the slogan, "Give Something Electrical," were secured from the Society for Electrical Development, Inc. Eighteen thousand small slogan cards, sixteen of which comprised a set, were printed in three colors. Each card carried an illustration of an electrical appliance and some sales argument that was applicable. This material, together with holly wreaths and red ribbon, was offered to the electrical dealers of the state.

Campaign representatives and the jobbers' salesmen, armed with samples of this material called upon the retailers, urging them to order it from the Campaign office and upon receipt of it to use their ingenuity in arranging windows with a personality. The result was a state-wide distribution and display of this material and many exceptionally attractive windows.

At the same time that these window displays first began to come into evidence, during the first two weeks of December, slides were released in 125 theaters, located in 104 cities and towns throughout the state. These slides, which had a holly border and a reproduction of the jovial Santa Claus of the sales slogans, bore the message, "Make Christmas Last Throughout the Year," and across the bottom, "Give Something Electrical."

Results in this sales campaign have not been recorded, nor has there been time to secure a statement as to the opinion of the dealers as to whether or not the drive was successful from their point of view. The least that can be said for the effort is that much publicity was given to electrical devices during the period preceding Christmas.

The work of the Campaign, during 1923, has passed into history. The results are encouraging. Effort has been well spent and returns should be considered as a goal that should not only be reached but should be passed during the coming months of 1924.

Directive Type of Radio Beacon Aids Aerial Navigation

RECENTLY an airplane flew to Dayton, Ohio, from a point a hundred miles away, the pilot depending for guidance entirely upon the signals received from a new type of radio beacon. In his receiver he heard the letters "A" and "T" repeated over and over. As long as he flew along the correct course both letters were equally loud, but the moment he got off the course to one side or the other one letter became noticeably louder than the other and showed him which way to turn to get back. An ordinary airplane receiving set was used.

This beacon, which was developed by the Bureau of Standards, Department of Commerce, in cooperation with the United States Signal Corps and the Army Air Service, consists of two coil antennas placed so as to cross each other at an angle of 135 deg. Each consisted of a single turn of wire 100 ft. long and 50 ft. high. The transmitting set is automatically connected first to one and then to the other, one letter of the signal being sent over each. The signal from an antenna of this type varies from a maximum in the plane of the coil to almost zero at right angles. A receiving set located along the line bisecting the angle between the coils will therefore receive signals of equal intensity from both, and the ship or airplane carrying the receiving set can thus be guided along this line in either direction, and without regard to conditions of visibility.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earl Browne

THE signal systems of any building should receive as much consideration as any other part of the electrical installation, but until recently the question as to standards in this class of work has received little or no consideration except where the work was of sufficient size to demand the services of an electrical engineer. As a consequence the future upkeep expense to the owner has been a source of much argument and dispute of bills.

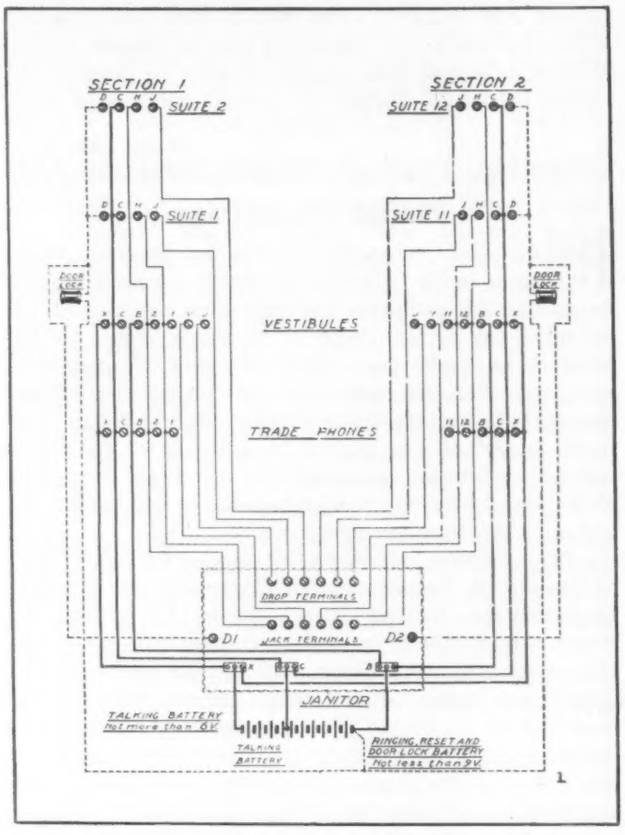


Fig. 1—Wiring plan for S. H. Couch Company, Inc., non-interfering apartment house system.

In the case of the common bell and push button the grade of materials used and insulation resistance of the wiring should be at least 50 per cent of the code requirements for a light and power installation.

For intercommunicating telephone systems all cables should be of the lead encased type in order to prevent the presence of moisture. This applies particularly to cables installed concealed between walls

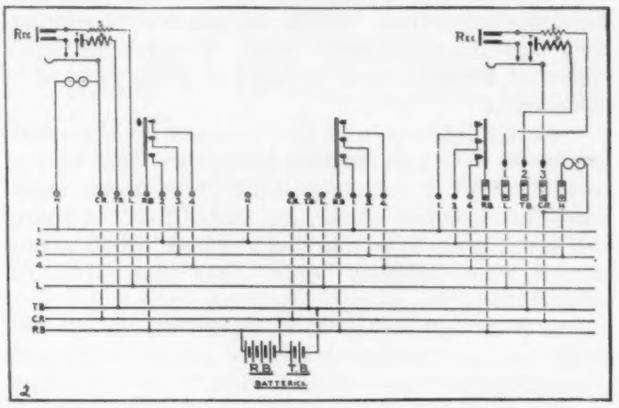


Fig. 2—Wiring plan for Connecticut Telephone & Telegraph Company common talking, selective ringing system.

and floors as it is then impossible, except at great expense, to replace them, should the insulation resistance be lowered to a point where trouble develops.

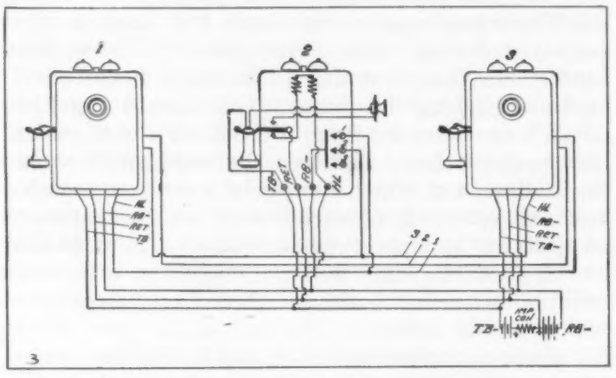


Fig. 3—Wiring diagram for Stanley & Patterson selective ringing, common talking system.

If the installation is in conduit the use of the lead covering is not so important as it is then always possible to pull in a new piece of cable if trouble develops. Even in the conduit job the use of lead

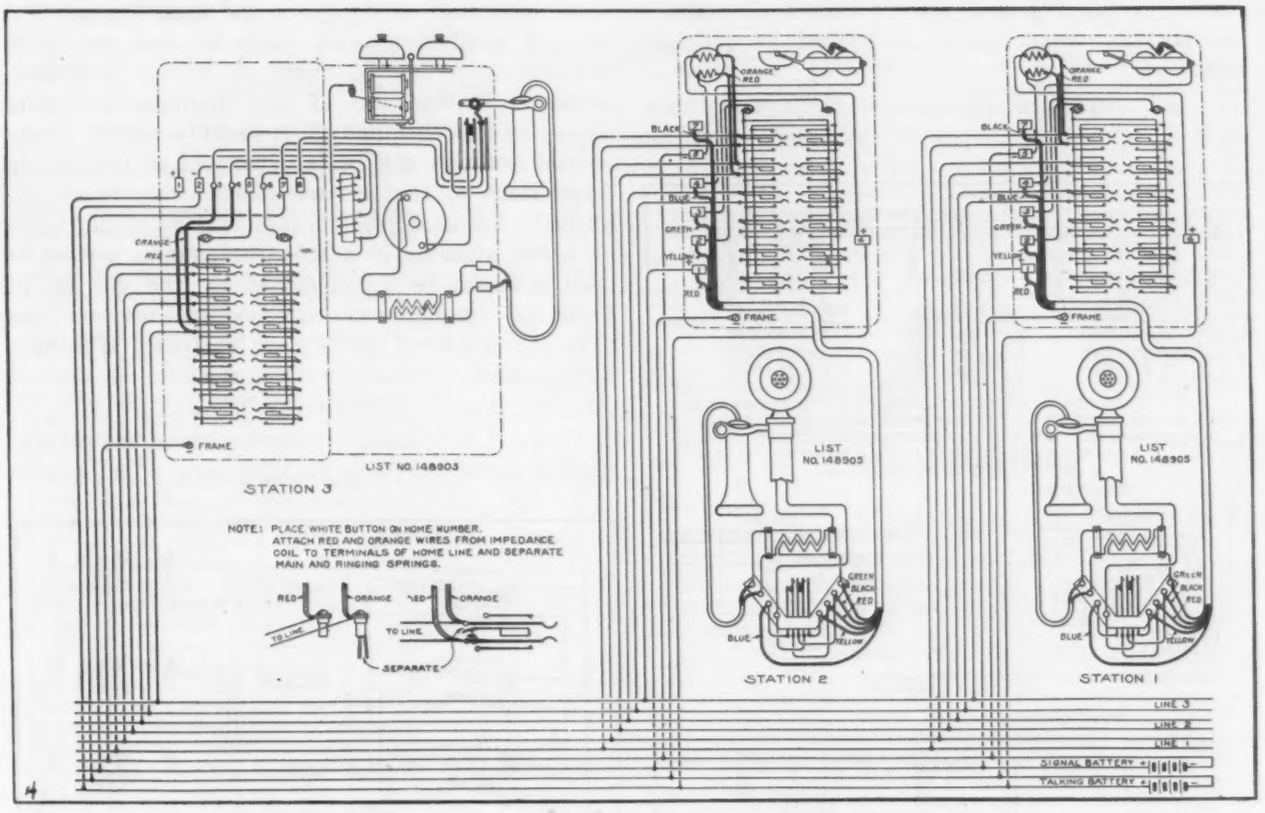


Fig. 4—Wiring diagram for Holtzer-Cabot selective ringing, selective talking system.

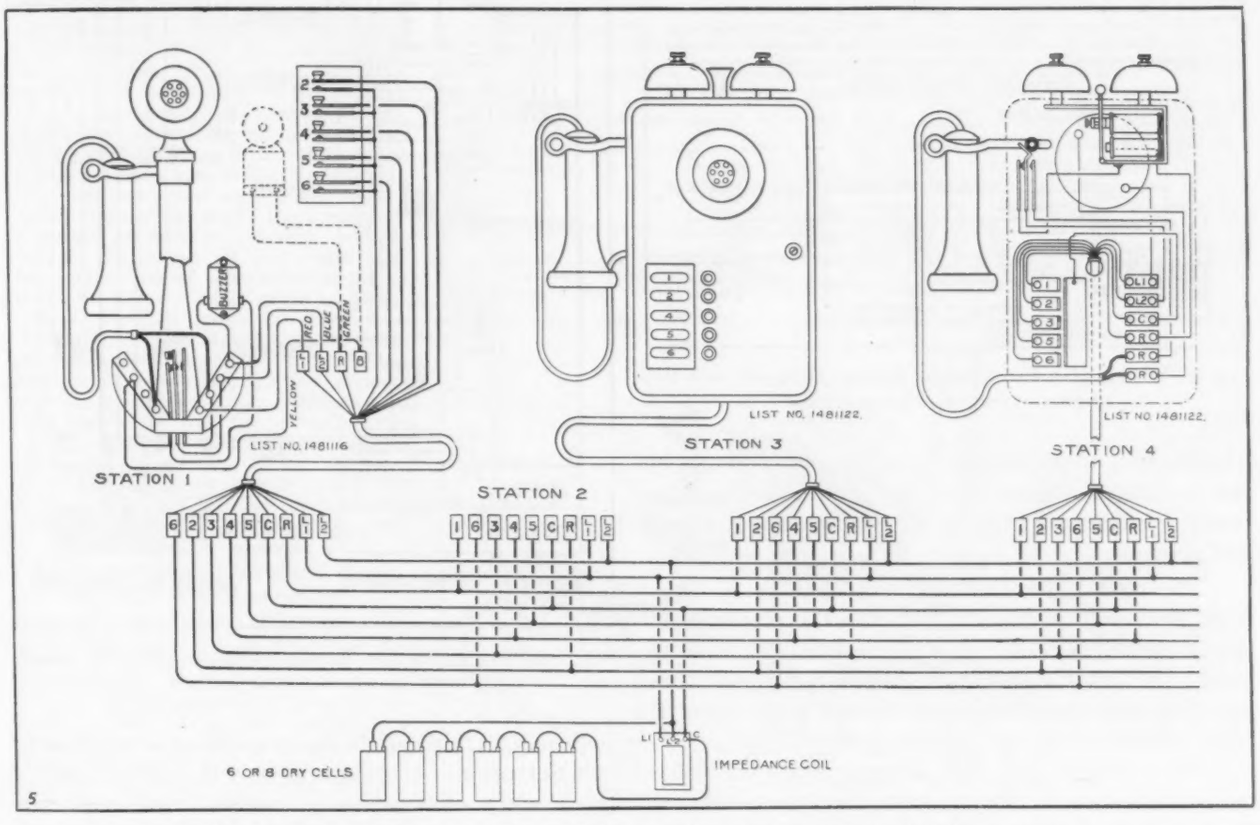


Fig. 5—Wiring diagram for Holtzer-Cabot selective ringing, common talking system.

encased cable is preferable, particularly if any of the conduit installation has pockets and is in such a location that condensation is formed or moisture exists.

All wiring for all types of signal apparatus, be it bells, fire alarm, hospital silent signal systems,

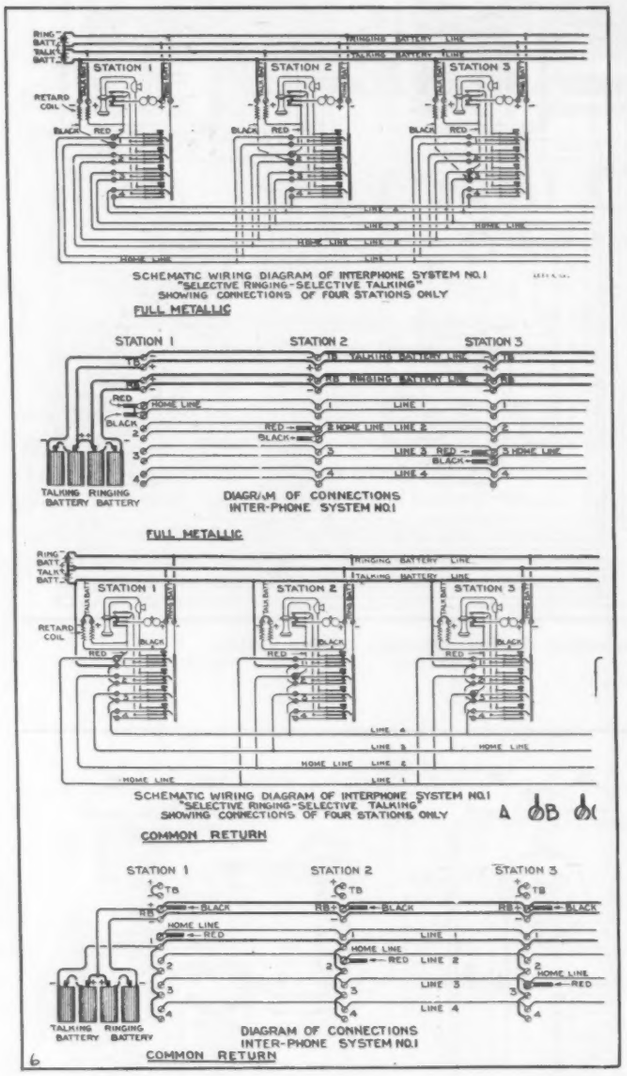


Fig. 6—Wiring plan for Western Electric Company selective ringing, selective talking system.

interphones, or apartment house systems, should be run in such a manner that any equipment may be readily disconnected for testing for location of shorts and grounds.

The intercommunicating telephone as a time-saver in the office, factory and even the residence of two or more floors, is not often realized by those to whom the advantages have not been shown. The result is that a makeshift return-call bell system is often provided, with results far from satisfactory.

For instance, we will assume that the sales manager wishes to discuss with the superintendent the question of when a certain order could be run. He must first call the superintendent to his office from some part of the plant and then the superintendent must retrace his steps to find out when the new set-up can be made on certain machines, whereas, by the use of the intercommunicating phone, all this time and effort could be saved. Many special features can be incorporated in the wiring connections so that certain results may be accomplished. For example, if a code ringing circuit to all or a few stations in a selective ringing system is desired, it can be accomplished by the use of an additional ringing wire branched to those stations to be so called from one or more locations. If private conversation between certain stations is desired this, too, is easily accomplished.

Figs. 1 to 7, inclusive, show some of the connections of various systems made by some of the promi-

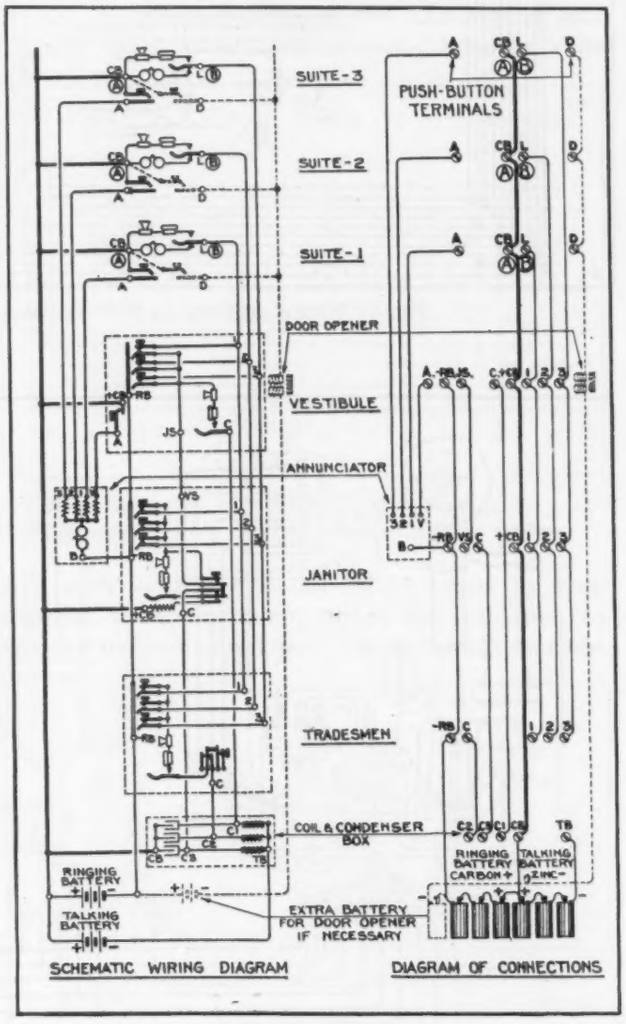


Fig. 7—Wiring plan for Western Electric Company apartment house telephone system.

nent manufacturers. In many of these a bell-ringing transformer can be used in lieu of the signal battery and thereby eliminate any trouble from weak batteries.

Sacramento Valley Electrical Society Monthly Meeting

The Sacramento Valley Electrical Society held its regular monthly meeting at the Hotel Land, Sacramento, Calif., at 6:30 p.m., Feb. 13. "Hal" Willis presided. Reports on the "Courteous Service Club" drive by R. T. Stephens and Roy N. Phelan showed a total membership of 127 signed up to date. Each urged that applications be sent in promptly and that everyone put forth renewed effort during the remainder of the drive. President Willis announced the appointment of the following committee chairmen:

Public Relations, E. W. Florence, Pacific Gas and Electric Company; Membership, S. E. Gamble, Westinghouse Electric & Manufacturing Company; Publicity, Roy N. Phelan, Electrical Contractors' and Dealers' Association of Sacramento; Finance, W. H. Evans, Sacramento Northern Railroad; Program, F. D. Bennet, Weinstock-Lubin Company; Educational, L. J. Fletcher, University of California, Davis, Calif.; Get Well and Visiting, A. H. Hobbs, Pacific Telephone & Telegraph Company; Chamber of Commerce, C. H. Carter, C. H. Carter Company.

The program was in entire charge of L. J. Fletcher of the University of California at Davis, Calif. One of the features of the evening was the College Quartette, comprised of M. J. Heppner, Ralph Mitchell, Pierce Thompson and J. D. Long. R. L. Forsythe played a flute solo and also a novelty number with a musical saw. He was accompanied on the piano by H. J. Shellhouse. J. D. Long of the quartette led in mass singing.

Prof. C. B. Hutchison, director of the branch of the College of Agriculture of the University of California at Davis, Calif., talked on "The Present Agricultural Situation." He called attention to the vital importance to the country of a prosperous rural population and stated that agriculture has been experiencing a panic since 1920, while other industries have been relatively prosperous. He said that agriculture was a basic industry and urged the keeping of a goodly amount of American population on the farms. It was stated that the application of electricity tended to make the farm a better place to live.

L. J. Fletcher spoke on "Power in Agriculture." He stated that statistics showed a definite relation between the amount of power applied per farmer, and his prosperity. Mr. Fletcher said that California was far ahead of the rest of the country in the application of electricity on the farm, but that there has been a laxness in advertising this development to the rest of the country.

1923 National Electrical Code Errata Are Announced

Certain typographical errors have unavoidably occurred in the early editions of the National Electrical Code 1923 edition. These errors are not of serious consequence but in order to ensure correct interpretation of all Code rules the necessary corrections are given herewith. All firms or individuals desiring this information in pamphlet form for pasting in the Code book may obtain the requisite number of copies by addressing the Board of Fire Underwriters of the Pacific, Merchants Exchange Building, San Francisco, Calif.

NATIONAL ELECTRICAL CODE
Errata; 1923 Edition; Dec. 1, 1923

Rules:	
405-c	4th line of note—insert "each" before "such."
503-o	7th line—insert "gutter of the" before "cabinet."
603-d	4th column of table—change "branch" to "braid" (in heading).
701-p	3rd line—change "503" to "502."
701-q	3rd line—change "joints" to "joists."
808-c	6th line—change "Table C" to "Table I."
808-e	2nd paragraph designated "e." Change "e" to "f."
810	Change reference from "1003" to "1002."
814-a	3rd line—drop "of designs" down to head 4th line.
901-b	2nd note, 2nd line—change "e" to "d."
1003-h and i	Transpose and reletter.
1201-h	1st line—change "400" to "600."
1401-c	9th line—change ".05" to ".04."
1403-b	4th line of note—"approximately."
1403-f-g-h	Change to read "d," "e" and "f," respectively.
1404-g	3rd line of note—change "15/32" to "13/32."
1405-a	2nd line—print "Rosettes" with small "r."
1602-d-e-f-g-h	Change to read "e," "f," "g," "h" and "i," respectively.
3102-e	The first paragraph designated "e" should be "c."
3301-b	10th line—change "doors" to "resisting floors."
3802-d	2nd line—insert "weatherproof" before "approved."
3908	Heading (page 141) change to "3905."

INDEX

Auto. prot. of circuits: Border lights—change "811" to "812."
Feeders at supply station—change "814" to "815."
Footlights—change "811" to "812."
Generators—add, and refer to 810, 1002.
Heating appliances—change "810" to "811."
Outline lighting—change "812" to "813."
Signs—change "812" to "813."
Switchboard instruments—change "813" to "814."
Border lights—change "811" to "812."
Grounding, motor frames—change "3001" to "1001."
Heating appliances, protection of—change "810" to "811."
Induction coils—strike out.
Instruments on switchboards—change "813" to "814."
Multiple series—change "1303-a" to "1003-a."
Outside work, trolley wires—change "301" to "303."
Protective devices, fuses, etc.—change "814" to "815."
Rotating machinery; generators—change "1402" to "1002."
Series multiple—change "1303-a" to "1003-a."
Transmission lines—change "303" to "304."
Yard—change to read "401-b, 405-f."

All-Electric Apartments Rent Quickly in Santa Rosa

Santa Rosa, Calif., is one of the cities that has recently witnessed the installation of an all-electric apartment house. The building is a three-story, frame and stucco structure and contains fifteen apartments. Each of these apartments will depend entirely upon electricity for lighting, cooking, heating and hot water. Special model Universal electric ranges were installed, these being made especially for the small kitchens which were planned for this building. Wesix electric air heaters will provide comfort throughout the entire building and are so installed that each heater is individually controlled. The hot water is furnished by Wesix electric water heaters of the circulating type.

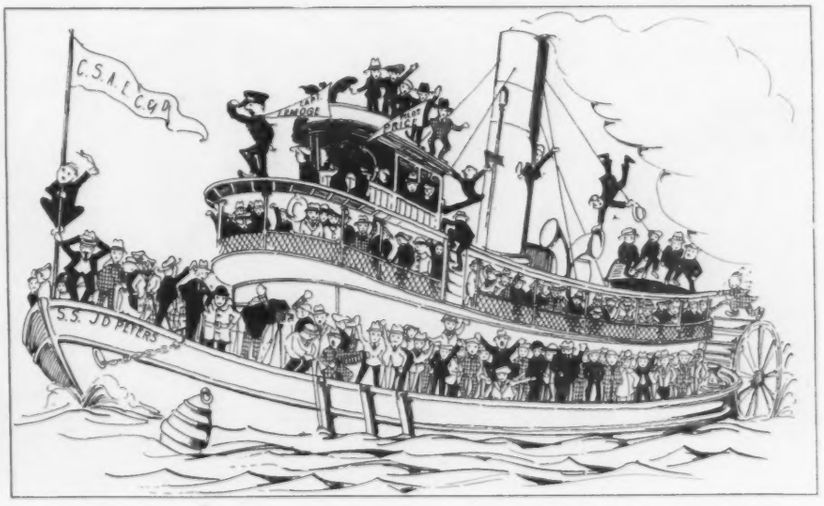
The entire equipment lay-out was made by the Electric Development Company of California.

State Association Meeting to Be at Stockton on March 15

The next quarterly meeting of the California State Association of Electrical Contractors and Dealers will be held at Stockton, Calif., on March 15, 1924. The Hotel Stockton has been selected as official headquarters and all meetings will be held there. The executive committee will meet at 10 a.m. and at 1 p.m. there will be a general business meeting, open to all.

For the accommodation of those members who live in the San Francisco Bay district arrangements have been made for a limited number to travel on the steamer "J. D. Peters," of the California Navigation & Improvement Company, leaving San Francisco at 6 p.m. on March 14. The return trip will leave Stockton at 6 p.m. on March 15 and arrival will be early on the morning of the next day.

The rate for the round trip including transportation, berth and meals while en route is $11 per person. Reservations should be made through Walter F. Price, executive secretary of the association, 318 New Call Building, San Francisco. Representatives of all branches of the industry are invited to attend this meeting and to participate in the activities of the meeting.



San Francisco Bay members of the California State Association of Electrical Contractors and Dealers will leave that region March 14, on the steamer "J. D. Peters" bound for Stockton.

JOBBER, DEALER AND SALES AGENT

Giant Electric Signs Are Erected in California

Realtor and Sugar Company Use Illuminated Letters to Attract Attention to Home Tract and Company Name

The use of large electric signs, situated some distance from the centers of population, has been given considerable attention by the electrical industry on the Pacific Coast. Advertisers have paid increasing attention to this method of attracting attention to their products, with the result that a number of new installations have been made. Most of the signs that have been placed are so situated that, due to their size, they are legible from great distance.

What is claimed to be the largest electric sign in the world has just been installed in the hills back of Hollywood, Calif. This sign contains but one word, "Hollywoodland," the name of the subdivision on the upper part of which the sign is located. Each letter is 45 ft. high and the entire sign is nearly one-quarter of a mile in length. It is located 1,550 ft. above sea level, at an elevation of 900 ft. above the valley below. From this vantage point it can be read from a distance of ten or twelve miles.

Each letter in this sign is supported by two or three 75-ft. 10-in. top cedar poles set in concrete and heavily guyed four ways from large concrete dead men. The letters are made of unpainted galvanized iron and are fastened to 2x4-in. wooden vertical strips which are fastened to 3-in. iron pipe running horizontally between the poles.

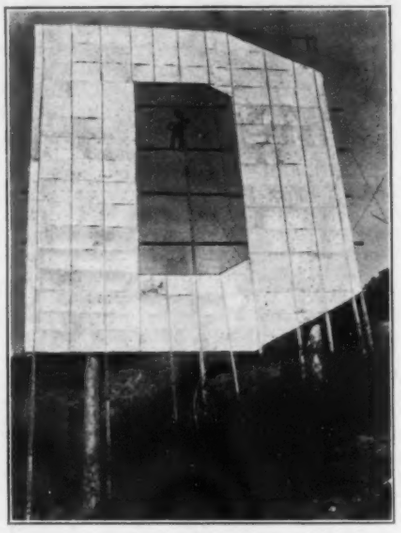
The sign contains 4,000 special sign receptacles and is lighted from metal raceways by 4,000 10-watt lamps placed in 9-in. centers. The sign is connected to a flasher that flashes "Holly-Wood-Land." The entire sign is turned on and off by a 10-amp. time switch that switches the current into a 10-amp. flasher that in turn operates remote-control switches controlling lamps on the sign. This unique scheme not only works excellently, but brought about a saving of several hundred dollars.

This sign was built and installed by the Electrical Products Corporation, Los Angeles, for S. H. Woodruff, owner of this subdivision. The installed cost was $20,000.

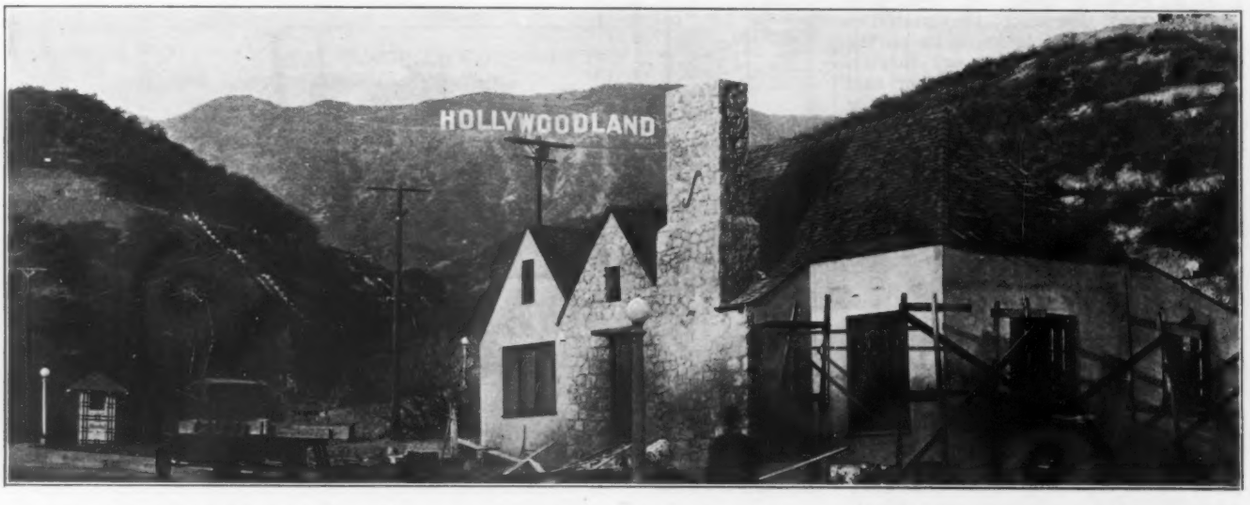
Another new sign that has recently attracted considerable attention is that of the California & Hawaiian Sugar Refining Corporation located on the sugar refinery at Crockett. The bright glow from this sign has been found to be visible, at night, from a distance of eight miles. The letters "C" and "H" are legible 3½ miles from the refinery either by day or night and the balance of the sign, reading "Pure Cane Sugar," can be read from a distance of 2½ miles in the daytime and from points two miles away at night.

The sign that has been erected by the California & Hawaiian Sugar Refining Corporation is so placed that it is visible from a number of different points. Persons driving toward Crockett along the state highway can see the sign from some distance and passengers on trains can read it while the trains are between Vallejo Junction and Crockett. The sign is also visible from the bay that is on the north side of the refinery.

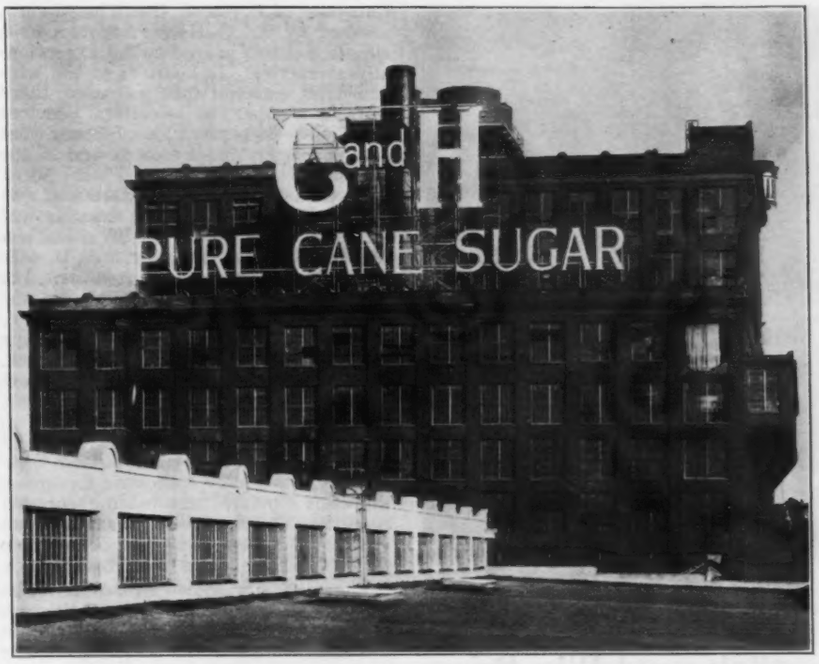
Though not as large as the Hollywood sign, the one at Crockett is of large proportions. The two main letters—"C" and "H"—are each 24 ft. high and occupy a space 50 ft. wide. Five feet below these letters is the slogan, "Pure Cane Sugar," the letters of which are 10 ft. high. The thirteen letters in the lower position on the sign occupy a space 120 ft. wide.



Letters in the "Hollywoodland" electric sign are 45 ft. high. Supports are 75-ft. cedar poles.



The "Hollywoodland" electric sign is visible from a distance of about twelve miles. It is 900 ft. higher than the house in the foreground.



Eight hundred and eighty-three lamps are used to illuminate the sign of the California & Hawaiian Sugar Refining Corporation.

To make the sign attractive and visible in the daytime, white enameled glazed steel was used for the facing of the letters. This surface also provides good reflection for the lamps at night. A total of 883 sockets was placed in the sign and 25-watt lamps are used throughout.

Steel truss work was erected to support the sign which rises to a height of 50 ft. above the surface of the roof on which it is placed. The sign structure is designed to withstand a wind velocity of 100 m.p.h. The Federal Electric Company of San Francisco designed and erected the sign.

Get Ideas from Manufacturers' Agent and Jobber

San Francisco Showroom of Manufacturer Illustrates Attractive Method of Displaying Electric Appliances

To the electrical dealer that is looking for ideas to be used in displaying his stock, the showrooms of the manufacturers' representative or of the jobber presents a solution to the problem. Display ideas, in these showrooms, often are carried to a high point and particularly attractive results secured. If the dealer will observe the methods used, he can increase greatly the value of his showroom.

Manning-Bowman & Company has installed in its San Francisco office a display that should offer many ideas to the observing dealer. The showroom has been arranged to set off the display of electrical merchandise to the best advantage. The exhibit is open to dealers at all times and an attendant is present to be of assistance to visitors.

B. M. Tassie, Pacific Coast manager for the manufacturer, is responsible for the layout of the showroom. In planning the arrangement, Mr. Tassie undertook to make the display as attractive as possible. He also planned to make it one that could be copied by electrical dealers.

A number of large showcases were specially designed and placed along all of the walls of the showroom. The cases are built of mahogany and are fitted with simple but attractive hardware and good quality glass. Three shelves, so designed that they may be raised or lowered, are placed in each cabinet. The interior of the cases is finished in a soft gray which harmonizes perfectly with the mahogany exterior and at the same time furnishes an attractive background for the nickel and silver-plated electrical appliances that are displayed in the cases.

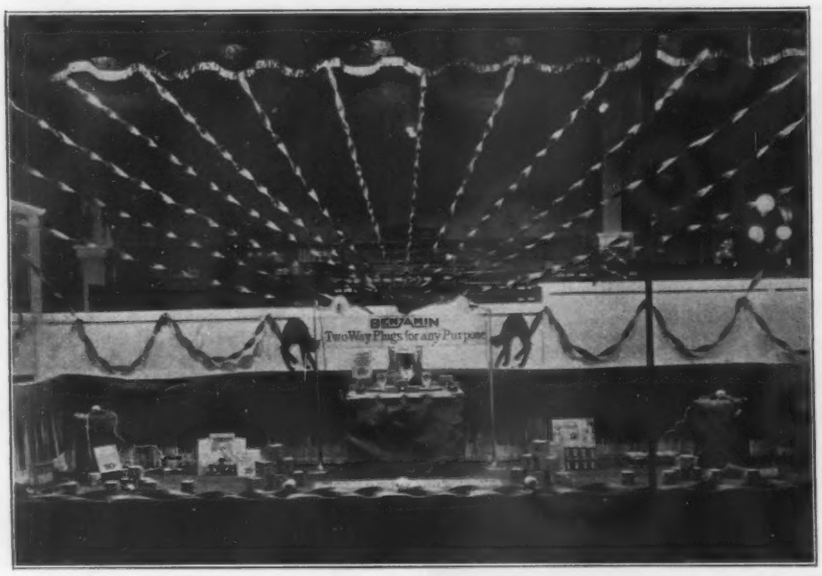
A special system for lighting the showcases was designed and installed. The light sources are hidden by the mahogany trim and reflectors direct the light so that it falls evenly upon all of the appliances that are displayed in the case. Shadows are eliminated and the brightly polished appliances stand out from the gray background of the case. Pull cords on the exterior of each case provide means of locally controlling the illumination of each showcase.

The windows on the front of the display cases are so designed that they may be raised easily should it be desirable to take any appliance from the case to show it to a visitor. A large number of devices are shown in the case, but by careful arrangement any crowded effect has been avoided.

In addition to the showcases placed around the walls of the room, there are several smaller cases with glass on four sides. The woodwork on these cases is also of mahogany, the same material being used on the floor of the display unit. Glass shelves are placed on nickel-plated supports.

The display as a whole presents an attractive view to the visitor, bringing out, as it does, the beauty of the electrical appliances in the exhibit. The result has been achieved by carefully studying the character of the merchandise to be displayed and by designing showcases to display this merchandise.

The illustration at the left shows how the display cases appear when the interiors are illuminated. At the right may be seen a larger portion of the Manning-Bowman & Company showroom with the cases not illuminated.



The Stubbs Electric Company, Portland, Ore., won first prize in the Hallowe'en contest with the window display shown above.

Dressing Windows to Bring Sales and Win Prizes

Western Concerns Win Seven Out of Possible Thirty Awards in Two National Window Trimming Competitions

A first and a third prize in two national window display contests have recently been awarded to two Western electrical concerns. Pictures of window displays from nearly two thousand dealers were entered in the first contest and approximately three thousand electrical establishments entered pictures of their displays in the second competition.

Both of the contests were conducted by the Benjamin Electric Manufacturing Company and window dressers were instructed that the only stipulation was that their displays must feature Benjamin two-way plugs. The manufacturer furnished the window trim material to the dealers and it was only necessary for the decorator to use his own ingenuity in the arranging of the display.

The first contest was centered around Hallowe'en. Rolls of black and orange crepe paper were supplied to the dealers as were four window cards and two window strips which were printed in orange and black. According to reports sent to the manufacturer after the contest, all of the dealers who applied for the window trim material used it to good advantage. In most cases the crepe paper was cut into narrow strips and these strips were used to draw attention to the displays of plugs that the window was built around. In many instances the dealers used the conventional black cat and the witch astride her broomstick to carry out the idea of Hallowe'en.

First prize in this Hallowe'en contest was awarded to the Stubbs Electric Company of Portland, Ore. The window, dressed by E. T. Hunter, though of a simple nature, proved to be exceptionally attractive. In addition to the window trim material that was used, there were a number of electrical devices attached to two-way plugs. Plugs were also shown on display cords and in the standard cartons.

Seventh prize in the contest was won by the Conklin Electrical Company of Ventura, Calif., and the White Electric Company, of Berkeley, won twelfth prize. The other prizes were awarded to electrical concerns in the Eastern and Middle Western states.

In the second competition which was conducted during Thanksgiving week, interest among the electrical retailers was even greater than in the first one, according to the number that entered. Out of nearly three thousand electrical dealers who sent in pictures of their windows, the White Electric Company won third prize, thus placing in both contests. B. A. White, manager and owner of the concern, was responsible for both of the prize winning displays.

The second window trim, which won third prize in the national contest, was designed to show the difference between the old-fashioned Thanksgiving dinner table and the modern one. Large dolls were used to good advantage to represent the diners and in the window devoted to the old-fashioned idea, these figures were dressed in quaint Puritanical costumes. The table, at which the dolls sat, was illuminated by a single candle, the idea being to indicate that no electrical conveniences were available at the time. This window was labeled, "The Old Way."

Directly across from the first window was one labeled, "Benjamin Two Way." Here the dolls were seated at a small table upon which there stood an electric toaster that was attached by means of a two-way plug to a bracket fixture on the back wall of the window. This scene gave the impression that it was illuminated by a light connected to the two-way plug that served the toaster. Small placards and price cards aided in calling attention to the large display of plugs. A large two-way plug was also illustrated in each of the display windows.

Three other electrical dealers operating in the Western states were awarded prizes in the Thanksgiving window trim competition. R. Stoehrer's Electric Shop of Oxnard, Calif., in a single-window display showed the uses of two-way plugs as aids to securing the most convenience from electrical appliances. The Electric Shop, Shelby, Mont., used, as a background for the display, an enlarged illustration of one of the plugs and radiating from this central figure were strips of crepe paper. In the foreground were lamps and appliances connected to two-way plugs. Congor's Electric Shop, Woodland, Calif., employed an electric train to attract attention to its display. Turkeys and other appropriate Thanksgiving symbols adorned the background of the display window.

That all of the dealers who participated in either contest were completely satisfied with the results that were secured from the feature displays was assured, according to the manufacturer, by the remarks made following the close of the two competitions.

Third prize in the Thanksgiving competition was awarded to the White Electric Company.

Electrifying Denver's Modern School Buildings

Electrical Cooperative League of That City Increases Number of Outlets Through Educational Campaign

Proper electrification of the public schools now under construction or about to be built in Denver, Colo., is believed by the Electrical Cooperative League of that city a major requirement in the education of the younger generation. Proper lighting with adequate switching facilities and the required number of convenience outlets in each class room are features which the pupils will appreciate, unconsciously or otherwise, according to a report recently issued by S. W. Bishop, executive manager of the League.

As part of the League field work, unusually close contact has been maintained with the engineers of the school board and the various architects commissioned to draw the plans for the twenty-two school projects, costing in excess of $6,000,000. Standard features applicable to all classes of construction were recommended to the board's chief engineer and it is understood that these provisions have been followed in detail.

The extent to which the League's recommendations have been accepted is set forth in the following results:

1. Increase of 200 watts to average class room, thus boosting the illumination 1.2 foot-candles to an average intensity of 4 foot-candles.
2. Increase of 1 to 2 watts for every 3 sq.ft. in gymnasiums and auditoriums.
3. Use of standard commercial lighting units generally of the total enclosing type.
4. Average distancing of ceiling outlets in corridors reduced from 40 to 20 ft.
5. Installation of conduit in all class rooms, assembly halls and auditoriums to permit ultimate use of loud speakers in connection with the plan to "radioize" Denver's public school system. (In the meantime this conduit is finding economical use in providing wires for clocks and buzzers.)
6. Installation of one convenience outlet, duplex flush type, and addition of one switch in every room, large or small.
7. Distancing of foot lighting outlets on stage reduced from 12 to 6 and 9 in.
8. Addition of one and generally two Klieg outlets to school auditorium stages.
9. Footlights supplemented by border lights on all stages.
10. Installation of convenience outlets in orchestra pits of all school auditoriums.

The above general wiring improvements have been embraced in the general instructions to architects responsible for drawings and plans of the different school jobs. The League's offensive to improve school electrification was launched immediately after the bond issue had been passed and individual architects had been commissioned to design the different schools.

In line with this activity, it is the practice of the League staff to give careful study to each set of plans, after which suggestions and recommendations are made to school officials, principally the engineering department. Confirming letters covering these recommendations are directed by the League in every case as a means of impressing the importance of complete wiring.

Should not schools adhere to the same wiring standards adopted in the best homes and thereby familiarize pupils as well as educate them? If, for instance, better class homes were equipped with convenience outlets, should not their children be familiarized with their use while in school, especially those of poorer families where only an exposed lamp and suspension cord, perhaps, comprised the extent of wiring?

Reference to the illumination tables in "Standard Lighting" and their practical application proved a strong argument in favor of improved lighting and the use of standard commercial units exclusively. The tables of recommended foot-candle intensities convinced school executives that higher wattage capacities were based on standard practices and not vague guesses.

The installation of at least one convenience outlet in each class room permitted a greater flexibility and a completer use of electricity, it was argued. The old argument that a convenience outlet in the baseboards of the individual rooms permitted the easy operation of appliances, especially in the case of stereopticon lanterns during lectures, without marring the fixtures overhead with ugly, inconvenient wires, found great favor.

The argument that schools were coming more and more to be community centers and that they were finding growing use for neighborhood purposes and should therefore be equipped to fill more than the one purpose for which they were planned originally, stimulated the interest of school officials to the extent of improving stage lighting. Likewise

Something of the results in boosting business for the electrical industry is shown by the field work of the League. Figures show an actual increase of 5,012 outlets to jobs, such as office and store buildings, display windows, theaters, schools and residences.

Outlets	1st 6 Months	2nd 6 Months	Total
Convenience	1,437	1,374	2,811
Switch	205	312	517
Bracket	186	198	384
Ceiling	571	608	1,179
Miscellaneous	45	76	121
Total,	2,444	2,568	5,012

In obtaining these additions to jobs and in pushing other business building activities, a total of 1,419 contacts was made.

	1st 6 Months	2nd 6 Months	Total
Architects	142	93	235
Builders	171	96	267
Owners	71	94	165
Realtors	46	18	64
Newspapers and Miscellaneous	125	100	225
Electrical	329	134	463
Total,	884	535	1,419

The results that have been attained have been most satisfactory. Members of the Electrical Cooperative League of Denver have heartily endorsed the action taken in connection with the school electrification campaign.

THE GENIE OF YOUR LAMP

By JOE OSIER

Aladdin, according to old press dispatches, rubbed his wonderful lamp and was immediately possessed of that which he most earnestly desired—

And nothing was excepted.

Had he desired a pennant-winning ball club—that would have been his; likewise, had he craved an umpire that would call every strike a ball, or vice versa—

Pronto, up would have jumped the toughest "umps" that ever waved a broom or won an argument and, from then on, it would have been impossible for Aladdin's aggregation to lose a game.

Assuming all the above to be true—that this famous fabled Oriental did have the world by the tail with a downhill pull—

Things were pretty soft for him and he had no occasion to fume, fret or fuss—but—

Unfortunately, men in the Electrical Industry are not possessed of this wonderful lamp and wishing will not avail them. Before their wishes come true in this—

Jazzy, know your costs day,—

They must strut their stuff and do their dance according to the book—

Else they'll end up in a blind alley.

Today, men of the electrical game who are succeeding, rub the non-essential and the flap-doodle from their

Aladdin's wish for better business gets short circuited.

minds; rub the frowns from their brows and the February looks from their faces and—

Swing only at the good ones.

They succeed by rubbing their windows and showcases and rubbing out low bids—

Turned in by witless ones for the alleged purpose of keeping an organization intact.

The day of Aladdin and the lamp is done and the genie who lived but to serve the owner of the magic carpet is a dead fish.

He broke his back trying to carry a Swiss cheese quarry to a well-wisher—and so—

Those who spend their lives planning and pining and watching and wishing, may as well check out—

Relinquishing their rooms to guests who know that the "open sesame" to success is—

Brains, well directed effort and unceasing work.

This is true: The Genie of your lamp is yourself—and—

Bagdad is but around the block.

INDUSTRIAL NEWS

Colorado Springs Is to Vote on Municipal Ownership

The question as to whether or not the City of Colorado Springs, Colo., will engage in the business of supplying light and power to the residents of the city will probably be decided at a bond election, the date for which has been tentatively set early in April. It will be necessary to bond the city for about one million dollars if the proposals which have been made are accepted.

If the bond issue is sanctioned by the voters of Colorado Springs the city will take over the properties of the Colorado Springs Light, Heat & Power Company. This company has been operating under a temporary permit since Sept. 8, 1923, when its 25-year franchise expired.

The situation in which the utility company was precipitated last June when the taxpayers refused the company an operating franchise is still unfathomable, but recent reports received from that city indicate the possibility of a special election being called shortly asking the authorization of a bond issue for the city to build such additional lines and standby generating equipment as might be found necessary to insure complete municipal operation.

Under the terms of the old or Jackson franchise, title to the hydroelectric plant near Manitou passed to the city and since the expiration of the franchise the Colorado Springs company, a subsidiary of the United Gas & Electric Company, has been using the plant on a rental basis from the city.

The city council has already authorized the construction of a transmission line from the hydroelectric station to the city to accommodate the pumps at the municipal water works and some if not all of the ornamental street lighting, and it is understood that the city auditorium also may cut in on the special line.

The latter installation may be the outgrowth of a disagreement between the company and the city manager which has been carried back and forth in the daily papers relative to the alleged over-motoring of the auditorium. Several resolutions have also been passed by the city council forcing the company to revise charge schedules for certain classes of customers using large amounts of energy both for power and lighting purposes.

Considerable confusion has been injected into the situation through the action of the Colorado Springs & Interurban Railway Company announcing to the city council that owing to operating losses sustained due to the increase in automobile traffic the company would not apply for a renewal of its franchise on all lines and suggesting that the city take up the question of buying the company's property, valued around $3,500,000.

This action served as a bombshell in city politics, according to recent newspaper reports, because of its having been presented just at the time the city council was putting the finishing touches on the proposed bond issue resolution for municipal ownership of the central station.

The street railway company belongs to the Winfield Scott Stratton estate, one of the city's chief benefactors. The company has not paid bond interest for two years and no dividends on preferred stock of $500,000 outstanding have been paid since 1912. According to D. P. Strickler, president of the company and prominent Colorado Springs attorney, the company may not operate after the expiration of its franchise in March, 1926.

Los Angeles, Calif., Engineer Testifies on Dam Project

The development of water and power by a dam on the Colorado River at Boulder Canyon is necessary for the future water supply of the city of Los Angeles, Calif. This, in effect, is the gist of a statement made at the recent Congressional hearing on the Colorado River dam bill by William Mulholland, chief engineer of the Los Angeles Aqueduct. Mr. Mulholland stated that no volume of water greater than that now being received from the Owens River Valley could be acquired from that source, and that there was no place other than Boulder Canyon where sufficient water could be obtained to supply Los Angeles.

In cross-examination Mr. Mulholland was questioned regarding other projects suggested for flood control of the Colorado River. He gave as his opinion that these were all less practical than the one proposed for Boulder Canyon.

It was decided by the committee in charge of the hearing that written invitations to testify before it should be issued to representatives of all private power companies affected, to representatives of civic bodies, or others interested in further discussion of the Colorado River dam project.

Circulation of petitions to place the $500,000,000 California Water and Power Act on the ballot at the November election will be started in the near future, according to press reports. The measure that will be placed before the voters this year is now in the hands of the state attorney general. It is understood that the measure that will be on the ballot this fall will be practically of the same form as the one that was defeated by a large majority at the 1922 election.

Seattle, Wash., Will Investigate Skagit Power Project

A complete inquiry and investigation into the work done on the Skagit hydroelectric project under development by the City of Seattle, Wash., has been ordered by the city council, and a committee of three councilmen, C. B. Fitzgerald, Philip Tindall and E. L. Blaine, appointed to conduct the probe. The committee has drafted a questionnaire to be presented to J. D. Blackwell, city engineer, asking for information on progress of construction of the Gorge Creek plant. The questions asked include:

"When will the different units of the plant be completed and what will be the cost of each? What, if any, portion of the work included in the contract with R. C. Storrie & Co. (Gorge Creek contractors) has been or is intended to be executed by the city and at what cost? What portions of the Gorge Creek plant have been done by contract, and what ones by day labor? What remains to be done to complete the plant? How do you know that the work will be completed by May 1?"

After various plans had been considered for securing outside engineering help, or through local civic bodies, it was decided that any investigation lies with the council.

Mayor E. J. Brown is not in accord with the sentiment of some of the council members that an investigation should be made before the remainder of the $11,000,000 bond issue, approximately $937,000, be spent to complete the Gorge Creek unit. Mayor Brown expressed the opinion that it would be "fatal to interfere with the development of the Skagit project until the Gorge Creek plant has been completed."

The state bureau of accountancy has ordered three experts to audit the accounts of the project. The Skagit accounting system has been kept separate from Seattle's bookkeeping departments and the city's accountants have had no access to the books.

Correspondence Course to Have Portable Laboratory Sets

The Extension Division of the University of California has announced that correspondence courses in elementary physics have been prepared for students of the division. Portable experimental laboratory equipment has been prepared so that students will be able to do laboratory work in addition to the regular course reading.

The laboratory equipment has been designed so that it may be securely packed and sent to anyone in California who cares to take the course. Ten sets of the equipment are ready for use.

City Faces Choice of Special Election or Law Repeal

The city council of Los Angeles, Calif., on Feb. 13 adopted a resolution declaring its intention to submit to the people at the election to be held May 6, 1924, the authorization ordinances relative to the properties of the Los Angeles Gas & Electric Corporation. These ordinances empower the Los Angeles public service commission to expend not to exceed $50,000 in having the California State Railroad Commission make a survey of the company's electric system for the purpose of fixing the price the city shall pay to acquire it.

The Los Angeles Gas & Electric Corporation on Jan. 17 had filed referendum petitions demanding the repeal of the ordinances or their submission to the voters for approval or rejection at a special election. The signatures on these petitions were only partially checked, the results showing that 10 per cent of the registered voters were represented. The company brought suit to compel the city clerk to make a further check to determine whether 15 per cent of the qualified electors of the city of Los Angeles had signed the petitions. A 15 per cent petition would compel the repeal of the ordinances or their submission to the voters at a special election.

The council stated that the purpose of the resolution adopted was to let the Superior Court know that the ordinances would be submitted to the people. It further explained that by consolidating the election with the presidential primary to be held May 6 the expense of holding a special election, estimated at $100,000, would be saved.

However, on Feb. 20 the Superior Court handed down a decision that the city must count all the names on the petitions filed. If it develops that 15 per cent of the registered voters signed, the council must call a special election or repeal the ordinances.

New Electrical Code for Denver Is Being Considered

A new municipal electrical code for Denver, Colo., for safety and advanced wiring practice, promises to be in the same class as automobiles with four wheel brakes and balloon tires, is the plan of Charles F. Oehmler, city electrician, according to recent reports from that city. Although the city, a year ago, put into practice a revised ordinance that was considered a marked improvement, Mr. Oehmler and his corps of inspectors believe that further improvements can be made in the light of revisions contained in the latest code of the National Board of Fire Underwriters.

It is not known whether the new regulation supplanting the 660-watt rule will be given maximum allowance, but it is believed a generous increase of circuit wattage will be permitted and strict adherence to proper fusing will be maintained. The Public Service Company of Colorado is already following the 15-amp. fuse standard for branch circuits when its service men are called to replace fuses.

Notification has already been given to the electrical industry of Denver by Mr. Oehmler that the early discontinuance of the use of black enamel boxes will be required and that after Jan. 1, 1925, conduit and conduit fittings used in all classes of construction must be galvanized.

A recent city ruling also provides that bell ringing transformers will not be permitted in distributing cabinets, attics or closets and that they must be installed in the basement on metal surfaces, as close to the outlet as possible and with air space not less than ¼ in. between the transformer and the ceiling or wall.

Another feature of the new code will be the insistence on the use of standard concealed contact or pin protected flush type convenience outlets. This change was recommended by the Electrical Co-operative League of Denver.

Washington Water Power Co. Reports Appliance Sales

The Washington Water Power Company of Spokane, Wash., has recently issued a report covering the number of current-consuming devices sold by the company during 1923. The gross sales value of the appliances was $424,000, of which $234,000 was credited to Spokane and $190,000 to the outlying towns. Spokane and vicinity represent a population of 120,000 and there are about 50,000 people in the outside towns.

The total number of current-consuming devices sold on the system during 1923 was as follows:

Appliances	Spokane Sold	Country Sold	Total Sold
Vacuum cleaners	687	274	961
Waffle irons	304	305	609
Electric irons	838	724	1,562
Curling irons	255	195	450
Percolators	211	177	388
Toasters	246	227	473
Air heaters	511	375	886
Grills	56	46	102
Hot plates	88	70	158
Washers	245	401	646
Ranges	606	429	1,035
Heating pads	101	88	189
Miscellaneous*	91	584	675
Grand total,	4,239	3,895	8,134

*Under the heading of "Miscellaneous" are classified devices such as hair dryers, immersion heaters, soldering irons, Sew-Ez motors, vibrators, bake ovens, stand lamps, fans, ironers, sewing machines.

In 1922 the total number of devices sold amounted to 2,461 in Spokane and 1,650 in the country. This total of 4,111 compared to 8,134 in 1923 shows an increase of 4,023 devices.

Supervisors Requested to Delay Hetch Hetchy Bond Vote

Citizens of San Francisco will not be called upon to vote on the $39,000,000 Hetch Hetchy bonds until late in August or early in September, according to an informal agreement reached by the Board of Supervisors at their meeting of Feb. 25. The reason for the delay is that Mayor Rolph has asked for a two-months' leave of absence and at the same time requested that any election be postponed until his return. Action on the request was withheld until the meeting of March 3, but the informal agreement was reached by the board and the mayor.

Sealed bids on $5,281,000 worth of Hetch Hetchy water bonds of the 1910 issue will be opened by the Board of Supervisors on March 24. The funds secured from the sale of the bonds will be used in financing the city's water and power project activities during the present year.

Plans for June Bride Week Are Considered by Campaign

A decision, to the effect that the California Electrical Cooperative Campaign would sponsor June Bride Week for the third time, was reached at the last meeting of the advisory committee of that organization. Preliminary plans covering the methods that would be employed to create interest in the week were discussed at the meeting. No definite conclusions were reached and the matter will come up for final decision at the next meeting of the committee, to be held at Del Monte, Calif., on March 5.

A committee, known as the June Bride Week committee, was appointed to have general supervision of the activities of the California Electrical Cooperative Campaign in connection with the week. P. H. Booth, Edison Electric Appliance Company, Los Angeles, is the chairman of the committee. He will be assisted by C. C. Hillis, Electric Appliance Company, and F. H. Woodward, Great Western Power Company, both of San Francisco.

The week of June 2-7 will be called June Bride Week and every effort will be made to increase the sale of electrical appliances during the six days. Material to aid dealers will be supplied a sufficient time prior to the week to give retailers ample opportunity to make use of it.

Courses in Illumination Offered to Utility Employees

All men in the new business department of the Pacific Gas and Electric Company who meet the public in the course of their work are now receiving training in illumination engineering. This includes the gas sales department as well as those in the electric sales department.

Classes of about thirty people have been held on Tuesdays and Thursdays of each week since Jan. 29. Illustrated talks and stereopticon lectures have been given by the following men:

H. H. Allison, Pacific Gas and Electric Company, General Lighting Practice.

R. S. Prussia, Westinghouse Electric & Manufacturing Company, Window Lighting as an Advertising and Sales Medium.

H. C. Barnard, National X-Ray Reflector Company, Flood Lighting and Window Lighting.

Clark Baker, National Lamp Works, Practical Illumination Formulas and Lamp Efficiencies.

H. E. Mahan, General Electric Company, Industrial Illumination.

Carl Martin, Benjamin Electric & Manufacturing Company, Industrial Lighting.

C. A. Russell, Pacific Gas and Electric Company, Resume and Quiz.

The subjects of decorative residential and commercial lighting will be taken up in the future. It is expected to carry on these lectures for eight or ten more classes.

Railway Company Builds Eight Electric Locomotives

The Pacific Electric Railway of Los Angeles, Calif., recently put into service a 60-ton, 820-hp. electric freight locomotive. It is said to be the largest of its kind ever built on the Pacific Coast.

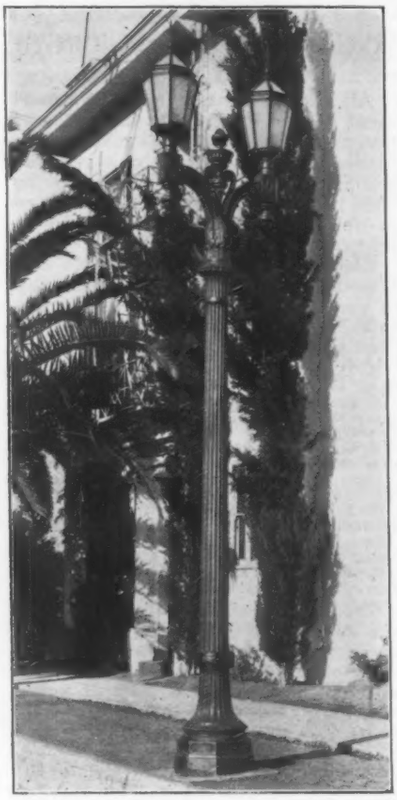
With the exception of castings and frames, which were cast in local foundries, the locomotive was built entirely in the railway company's shops where seven more of the same type are now being completed. The cost is estimated at $45,000 each.

Night scene on Hollywood Boulevard looking east from Cahuenga Avenue, showing the new ornamental lighting system recently installed.

Hollywood Installs Ornamental Lighting System

Two Lantern Type Units Illuminate Main Boulevard Through the Business Section of Southern California City

What is claimed to be the most unique and one of the most ornamental and attractive street lighting systems in the United States has recently been installed and put into operation on Hollywood Boulevard, in Hollywood, Calif.



Ornamental lighting units of this character have been installed on one of the main thoroughfares of Hollywood, Calif.

The new street lighting extends from the intersection of Vermont Avenue and Hollywood Boulevard to the intersection of Hollywood Boulevard and Cahuenga Avenue, or a distance of about two miles.

The lighting system includes 220 union metal two-light standards which were especially designed by the General Electric Company for use on Hollywood Boulevard. The standards are 17½ ft. high to the light centers. The lamps are of the paneled lantern type and are equipped with dome type refractors, while the glass used in the panels is light alabaster rippled panel. Each standard is equipped with a pot-head, while the lanterns are equipped with auto-transformers with taps for 400, 600 and 1,000-cp. lamp capacity, while the circuit in use is 6.6-amp. primary. Each lantern is at present equipped with 400-cp. Mazda lamps, which may be increased with the aid of the auto-transformer at any time, with no additional cost to the property holders.

The object of installing the dome type refractor for each lantern is to redirect the rays of light which would be lost above the horizontal. By using the refractor a more even and more effective distribution of light on the street surface is secured and dead shadows are eliminated. The design employed also permits of wider spacing between standards, in this case the standards being spaced 120 ft. apart and on opposite sides of the street.

A great deal of the credit for the installation is due to O. J. Helvey, street lighting specialist of the Los Angeles office of the General Electric Company, while the construction work was installed by the Paulson Construction Company of Los Angeles.

The Puget Sound Power & Light Company and the Pacific Northwest Traction Company plan the expenditure of $450,000 in extensions and improvements in Whatcom and Skagit Counties, Wash., during 1924, according to Harry B. Sewell, manager of the Pacific Northwest company. Of this sum, $140,000 will be expended in power line extensions; $60,000 for a steel bridge at Hibridge; $160,000 in rebuilding or filling in interurban trestle at Clayton Bay, and the remainder of the sum in miscellaneous improvements to the company's power and light properties.

Kitchen Lighting Campaign Held in Rocky Mountain Region

The slogan "Daylight Your Kitchen" is rapidly being disseminated in the Rocky Mountain region as the result of a number of kitchen lighting campaigns started during the month of February. The Public Service Company of Colorado launched the activity in Denver, Colo., and the cities on the western division of its property, and during the first half of the month nearly five thousand units were sold throughout the system, according to early reports. Meetings were held in Denver and each of the northern Colorado towns including Cheyenne, Wyo., at the start of the campaign by the commercial department of the company. J. G. Munro of the Bryan-Marsh division of the National Lamp Works and Harry Swindell of the Ivanhoe-Regent Works of the General Electric Company assisted in conducting the meetings.

The Mountain Electric Company, one of the larger Denver jobbers, has been unusually active in developing campaigns in other parts of the region. Several conferences, to which out-of-town central station executives were invited, were sponsored by John J. Cooper, general manager of the company.

Other central stations which have already started campaigns or contemplate doing so are the Arapahoe Electric Light & Power Company, Arvada Electric Company, Jefferson County Power & Light Company, Fort Lupton Light & Power Company, Home Gas & Electric Company, Colorado Power Company, Arkansas Valley Electric Company, Southern Colorado Power Company, and Colorado Springs Light, Heat & Power Company.

The selling scheme in each case is to provide 30 days' free trial with the bill payable in twelve monthly installments. Electrical contractors are making the installation of the units and the additional convenience outlets.

Operators to Fight California Tax on Electric Trucks

Under the direction of the Electric Transportation Association, San Francisco, Calif., operators of electric trucks are preparing to contest the constitutionality of the recent California Motor Vehicle Act, placing a flat charge on electric trucks of $50 in addition to other taxes provided by the Act.

It is claimed that this action discriminates against electric trucks not only because there is no reasonable basis for any such classification but because it is felt that electric trucks should not be subject to taxes as high as those on gasoline vehicles. This stand has been taken because the radius of the electric truck is much smaller and necessarily its speed is much less; consequently its use of the highways is much less than a gas-driven motor truck.

In the form of protest it is also being pointed out that in the states of Maryland and Massachusetts, a tax on electric vehicles is only one-half that placed on gasoline trucks and in the State of Pennsylvania, at the last meeting of its Legislature, an act was passed giving a substantial preference to electric trucks. These are precedents, it is claimed, which should be followed in California.

Review Activities of California Water Rights Division

A summary of the activities of the Division of Water Rights of the State of California for the year 1923 has recently been issued. The report states that during the past year 567 applications for water permits were received: 622 applications were acted upon; permits were granted to 324 applicants; 295 applications were rejected; and 169 licenses were issued. The volume of work done by the Division has increased steadily since 1914 when the California Water Code providing for the State Water Commission, the predecessor of the Division of Water Rights, was passed.

According to the report, the number of filings made during the last few years indicates that there will be greater activity in the construction of water projects than at present, as 45 per cent of the applications received since 1914 were made during the years 1921, 1922 and 1923. Several years usually elapse between the time of receipt of the application and actual construction on the larger projects. The applications received during 1923 contemplate the development of two million horsepower of electrical energy, the irrigation of one and a half million acres and the storage of three million acre-feet of water by municipalities for domestic purposes.

The Division states that during the year it was also active in the settling of water rights on the Shasta River in Siskiyou County and on the Whitewater River in Riverside County. A complete investigation of the streams in the San Gabriel River Basin, in Los Angeles County, was started last summer. It will take several years to make the entire study of underground and surface water. A total of six such investigations, requiring from several months to several years to complete, were under way during the past year.

To Hold Course for Meter Men in Denver March 17-21

The second annual short course of instruction for meter men will be held at the University of Colorado, Denver, Colo., March 17-21. Utility and meter men of the Rocky Mountain region have been invited to attend the course which will cover instruction in calibration and reading of meters, proper methods of connecting and testing, and the calibration of electrical instruments.

Prof. C. M. McCormick of the electrical engineering department of the University of Colorado will be in charge of the course. Frank C. Yerkes, superintendent, electric meter department of the Public Service Company of Colorado, will act as an instructor.

The course was initiated and sponsored by the Public Service Company of Colorado last year.

Power Plant on California River Is Put in Operation

The storage dam and power house being constructed about 1½ mi. below Bullards Bar on the north fork of the Yuba River by the Yuba Development Company have been completed. Generation of electrical energy was started on Feb. 19, ten days before the date set for the opening.

The dam is 183 ft. high from bedrock to the top of the spillway surmounted by a 19.5-ft. bridge, making a total height of 202.5 ft. The length is 552 ft. It will have a storage capacity of 32,000 acre-ft., forming a lake 7 mi. long. The penstock is 8 ft. in diameter and 300 ft. long. The capacity of the spillway will be 60,000 sec.-ft.

The power house is designed to develop 7,500 kw. with an ultimate capacity of 15,000 kw. with a static head of 175 ft. The transmission line is 11 mi. long and will carry 60,000 volts. It will tie-in with the Pacific Gas and Electric Company's system at the power house at Colgate, Calif.

Construction Crews Served Meals Near Tunnel Headings

Employees of the Southern California Edison Company engaged in driving the Florence Lake Tunnel, for some months have been eating their mid-shift meals inside of the tunnel. To provide hot meals for the men at work on the headings, which are about two miles from the tunnel portals, the company has designed two special dining car trains that carry hot meals in to the men working on the tunnel. A great deal of time is saved in this way and the men are not forced to go from the warm tunnel into the cold air at the surface during the middle of the shift.

The special dining car trains are made up of five cars, three of which are fitted with tables and benches, the other two being designed to carry the hot food into the tunnel. The food is transported in containers originally built for army use. These containers utilize the fireless cooker principle in keeping the food hot in transit. Two waiters accompany each train and take care of setting the tables and clearing them after the meal.

At present it would take the men away from their work for 1½ hr. if they were to go to the surface for their meals. As the work progresses the time involved would be greater. Another advantage of the system employed is that the men are not subjected to the temperature changes during their shift.

Fourth Long Lake Unit Put in Power Company Service

The new 22,500-hp. hydroelectric unit of The Washington Water Power Company at Long Lake, Wash., has been completed and is now in service on the general system. The new unit is similar in capacity and general construction to three units heretofore installed at Long Lake. It will bring the Long Lake plant up to the ultimate capacity for which it was built, 90,000 hp. The contracts for the turbine water wheel and generator were awarded in December, 1922. The I. C. Morris plant of the William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., made the wheel and the General Electric Company, Schenectady, N. Y., built the generator.

Water is fed into the turbine wheel through a steel penstock 14 ft. in diameter. The generator is of 17,500-kw. capacity and is of the horizontal type directly connected with the water wheel. When operated at full speed the new unit will require 1,300 sec.-ft. of water under a head of 171 ft.

The new unit was primarily intended for reserve power and peak loads and the additional water needed in the season of low water will be drawn from the reserve supply in Long Lake. The installation was in charge of the engineering department of The Washington Water Power Company, headed by V. H. Greisser, chief engineer; R. L. Hearn, assistant chief engineer; H. L. Melvin, electrical engineer, and Eugene Logan, civil engineer.

Citizens of Anchorage, Alaska, coast terminus of the government's Alaska Railroad, are planning a $450,000 hydroelectric power development on the Eklutna River, according to F. I. Reed, of Anchorage, and one of the promoters of the enterprise. The sum of $100,000 has been subscribed toward the development, Mr. Reed has stated. The site of the proposed plant is 25 miles from Anchorage, where it is believed 25,000 hp. can be developed. A plant with 2,000-hp. capacity is planned.

Mid-shift meals are served to Florence Lake Tunnel crews from dining car trains brought to within a short distance of the tunnel heading.

Hollywood Electric Home Opened to Public on Feb. 28

The new electric home at Hollywood, Calif., which embraces the very latest in modern electrical home construction, was opened to the public on Feb. 28 and will be open until March 16 from 2 to 10 p.m. daily. The home is located on Cahuenga Avenue, just under the cross made famous by the Pilgrimage Play. It is of the picturesque type seen along the Riviera in France.

The home was built by Reed & Company, architectural designers and builders; completely furnished by Barker Brothers and wired by H. G. Stone, under the supervision of the Los Angeles Electrical Contractors' and Dealers' Association.

The Hollywood electric home is one of individuality, attractively designed, artistically planned, uniquely arranged and completely equipped electrically. It has become an accomplished fact through the desire of the electrical industry to acquaint the public with the proper methods of wiring a home, with the end in view of lightening the household tasks by the proper application of electricity.

The Hollywood home, which is being displayed under the auspices of the California Electrical Cooperative Campaign, has some fifty of the most practical, useful and modern electrical appliances. It is expected that some seventy-five to one hundred thousand people will visit the home during the period it is open for inspection.

Electric home at Hollywood opened Feb. 28.

A large amount of publicity has been given to the home by the newspapers of southern California, due to the efforts of the committee in charge. Many original "stunts" were presented by the committee during the time that the house was under construction.

Valentine display window of the Public Service Company of Colorado. The display, which was installed by Allen B. Spencer, attracted a large amount of attention in Denver.

Big Creek 8 Service Restored by Speedy Penstock Repairs

One of the advantages of an extensive power system was illustrated effectively by the recent accident at the Big Creek No. 8 plant of the Southern California Edison Company when a 30,000-hp. hydroelectric unit was unexpectedly out of service about two weeks without causing any inconvenience to consumers. In fact, very few consumers even knew that the system was meeting any unusual condition. Another feature of the incident reflecting creditably on the company is that in this emergency of a high head penstock broken in two places a means of permanent repair was devised, the necessary pipe was manufactured, delivered to the plant up in the mountains 250 mi. from headquarters, and installed so that the plant was again in service within 14 days after the break.

The breaks in the pipe were caused, not by defective materials or workmanship, but by an error on the part of the operator which caused the Johnson valve to slam shut, setting up a severe water hammer in the 2,800-ft. penstock. Two ruptures occurred in the penstock, one about one-fourth of the way up and the other in the anchor section just outside of the power house.

The upper break tore the pipe open for the length of one section, the rupture being on the opposite side from and parallel to the longitudinal weld and crossing the circumferential weld approximately at right angles. Just outside of the power house in one of the thickest sections of the pipe line, the penstock was cracked for a length of about 5 ft.

In repairing the upper break, the ruptured section was removed from the pipe line and a new section was brought from Los Angeles to replace it. The lower break was repaired by using a piece of metal, taken from the upper ruptured section, as a butt-strap. This butt-strap was bolted in place on the inside of the pipe and then welded at the edges.

Light Snowfall May Mean Water Shortage in Nevada

According to a report of the water observer at Lake Tahoe on the line between the states of California and Nevada, the snow level there now is at the stage that would be normal during June. There is a shortage of about 90,000 acre-ft. of water in the lake at the present time. The Truckee River General Electric Company, Reno, Nev., operating in the State of Nevada, has an agreement with the U. S. Reclamation Service whereby it is to receive 500 acre-ft. of Lake Tahoe water from March 1 to Oct. 1. Unless heavy storms set in soon, reclamation service officials are doubtful whether it will be possible to live up to the agreement, recent press dispatches state.

Reports are also to the effect that the Lahontan reservoir now holds 203,000 acre-ft. of water, so that no shortage is anticipated around Fallon, Nev., or the lower end of the Lahontan Valley. Owing to the scarcity of snow at the headwaters of the Carson and Truckee Rivers, however, the prospect of a water shortage in the districts above the Lahontan reservoir is more serious.

Public Speaking Training Given to Utility Employees

A public speaking class for public utility employees has been organized by the Rocky Mountain Committee on Public Utility Information. Under the direction of a special sub-committee, a number of the members of which have been attending a series of professional instructions, arrangements for holding the class have been completed for a course lasting until the early summer.

The first meeting was held early in February with thirty utility men in attendance. Since that time the membership has been increased to fifty, according to George E. Lewis, secretary of the committee. Representatives of the street railway, telephone, the gas and the electric company are attending regularly, his report indicates.

The primary purpose of this activity is said to be preparation of material and qualification of speakers who may be called on any time to represent their respective companies or give a talk on some phase of utility service or operation. A series of five prepared talks are given at each of the meetings.

Inventor to Demonstrate Color Organ in San Francisco

The first public Pacific Coast presentation of the Clavilux, the color organ invented by Thomas Wilfred, will be made in the ballroom of the St. Francis Hotel in San Francisco on the afternoon and evening of March 15. A preview, at which some of the technical features of the device will be explained, has been arranged for March 13 at the Lane Hospital. The presentations will be made under the auspices of the National League for Woman's Service.

The instrument that Mr. Wilfred has invented is an optical and electrical device that blends the qualities of light and color, pouring these effects upon a screen in a rhythmic manner. The Clavilux is either played by the use of a specially prepared score or notation, or the effects may be improvised.

A keyboard, similar to one used by an organist, provides means of controlling the light that is projected upon the screen. Mr. Wilfred will operate the Clavilux at all of the recitals.

Two Permits for Power Projects Issued in California

Thirty-three permits to appropriate water in the State of California were issued by the Department of Public Works of that state during January of 1924. Of this number only two covered applications relative to power developments. The larger one of these projects is that of the Excelsior Water & Power Corporation, Smartville, Calif. The permit that was issued to the company allows the appropriation of 25 sec.-ft. of water from the South Yuba River in Nevada County. The company proposes to develop 2,078 hp. at an estimated cost of $204,590.

During the same month thirty-nine applications for water rights were filed with the department. The Bear River Water & Power Company, of Auburn, is the only applicant that desires to use water for power purposes. This company desires to appropriate 250 sec.-ft. and 100,000 acre-ft. of water from Bear River in Placer and Nevada Counties. The proposal is to erect three power houses to develop 42,994 hp.

Books and Bulletins

HYDROELECTRIC POWER STATIONS

By DAVID B. RUSHMORE, consulting engineer, General Electric Company, and ERIC A. LOF, engineering department, American Cyanimid Company. 830 pages, 437 illustrations. 6 x 9 in. Cloth, $7.50. John Wiley & Sons, New York, N. Y.

The second edition of this excellent book deals with the development of our water power. The authors have recorded the rapid advance of hydroelectric development and have treated the subject from a practical and up-to-date engineering standpoint. In the preface the authors state that the increased size of the typical modern power development calls for the adoption of an entirely new point of view in the consideration of the economic problems involved.

In a book covering so large a subject in which the design, construction and operation of hydroelectric properties are treated, it is impossible to discuss all of the various phases in detail. However, a sufficient amount of data and descriptive matter is included to give a good basis for a study of practically all of the subjects involved.

Starting with the history of water power and electrical developments and the water power of the world, with a short section devoted to the commercial opportunities for hydroelectric power, the book covers the hydraulic side of the subject with chapters on hydrology, dams and headworks, water conductors and accessories, storage reservoirs, power house design, and hydraulic equipment. Such modern developments as the spreading and hydraucone types of draft tubes and the propeller type of turbine runner are treated briefly and the illustrations with their descriptions show the application of the most up-to-date hydraulic equipment.

The electrical equipment treats the subjects of synchronous and induction generators, exciters, voltage regulation, transformers, current limiting reactors, switching equipment, over-voltage protection and station wiring. The authors call attention to the fact that the construction of larger units year by year has led to radical changes in the design of rotating machinery and transformers. Also, the concentration of immense amounts of power has created a demand for more rugged switching equipment capable of rupturing enormous short-circuit currents.

The use of relays and relay schemes for the purpose of isolating a short-circuited, or grounded piece of equipment, or a transmission line, and thus maintaining the continuity of service to the remainder of the system, has progressed rapidly during the past few years. This subject of protective relays and their application is treated somewhat at length, thirty-nine pages being devoted to it. The application of current limiting reactors and the latest type of lighting arrester equipment is also described quite thoroughly for a text of this nature which must of necessity cover so many subjects.

The last two chapters of the book treat of the economic aspects of the development of water power and in a brief way, of the organization of the operating force and the methods of operating a hydroelectric system.

Thirty-one pages are given over to an appendix covering physical data on systems above 66,000 volts, the Federal Water-Power Act, and the turbine testing code.

This book is a valuable addition to the literature of hydroelectric development. It is well written; the illustrations are good, and it is as up-to-date as it is possible for a text to be which attempts to cover this rapidly growing scheme of controlling the forces of nature. As a supplementary text to students of civil and electrical engineering, and as a reference book for practical engineers, managers, and operators of hydroelectric properties, the book should be of considerable service.

E. R. S.

Thomas Wilfred, inventor of the Clavilux, seated at the keyboard of the color organ.

The Western Electric Company has issued a new folder descriptive of its isolated lighting plant which is called the "Western Electric Power and Light Outfit."

Meetings

To Hold P.C.E.A. Convention at Coronado June 17-20

At the meeting of the executive committee of the Pacific Coast Electrical Association, held in San Francisco Feb. 15, preparations were made for the annual convention of the Association. The meeting was presided over by L. M. Klauber, president, with Samuel H. Taylor as secretary. Committee reports of a routine nature were read and approved.

S. J. Lisberger was appointed chairman of the convention papers committee with J. B. Black and R. A. Balzari as members. K. E. Van Kuran was appointed general chairman of the convention committee.

An innovation in former practice was provided through the appointment by the chairman and confirmation by members of the executive committee of a nominating committee, whose duty it will be to report nominations for officers to serve during the year 1924-1925. This committee consists of A. E. Wishon as chairman, and H. A. Barre, W. G. Vincent, E. O. Shreve and Clyde Chamblin. It is proposed that the committee will report to the general business session on the first day of the convention, rather than on the last day as heretofore in order that the incoming officers may familiarize themselves with the procedure and any matters of unfinished business, taking advantage of the contact with the outgoing officers before the convention period.

The committee also voted to hold another Western development conference similar to that at the general convention of 1923.

The executive committee has designated the Hotel Coronado, Coronado, as the place to hold the 1924 meeting, the time being June 17-20, inclusive. The Journal of Electricity was again designated as the medium in which the papers to be read before the convention will be published and distributed to the membership. The date for this publication has been set as June 1, in order to afford to the members ample time in which to study the papers and come to the convention prepared to discuss them on the convention floor.

Among those present at the meeting were L. M. Klauber, president, Frank A. Leach, Jr., S. B. Anderson, Samuel H. Taylor, J. B. Black, R. A. Balzari, C. C. Hillis, C. T. Hutchinson, S. J. Lisberger, Robert Sibley, J. F. Pollard and A. M. Frost. Committee chairmen R. E. Fisher, Al C. Joy and A. B. Carpenter also attended.

Electric Club of Los Angeles Elects 1924 Officers

At the annual election of officers of the Electric Club of Los Angeles held on Feb. 11 the following were elected: A. S. Moody, General Electric Company, president; F. E. Seaver, Los Angeles Gas & Electric Corporation, first vice-president; Ben G. Wright, Southern California Telephone Company, second vice-president; L. E. Moselle, Bureau of Power and Light, third vice-president; S. W. Murray, Illinois Electric Company, secretary-treasurer; L. R. Ardouin, U. S. Steel Products Company, sergeant-at-arms. D. C. Casselman, Builders' Exchange; F. E. Geibel, Pacific Electric Railway; Ross Hartley, The Electric Corporation; Arthur Kelley, Southern California Edison Company; C. T. Smallcomb, electrical contractor; and A. B. Vandercook, Western Electric Company, were selected to serve on the executive committee.

The officers named above will take over their duties at the meeting of March 3 when R. E. Smith, the retiring president, and his board of directors leave their positions. The slate shown has only one officer who has previously served on the executive committee or as an officer. Ben G. Wright, manager of the Southern California Telephone Company, served as vice-president during the past year. All those who constitute the present board have been active in the affairs of the club. The new president, A. S. Moody, is local manager of the General Electric Company.

COMING EVENTS

Pacific Coast Division Electrical Supply Jobbers' Association—
Quarterly Meeting—Del Monte, Calif.
March 6-8, 1924

Executive Committee, Commercial Section, Pacific Coast Electrical Association
San Francisco, Calif.
March 21, 1924

Engineers' Society of Pasadena—
Pasadena, Calif.
April 10, 1924

Wyoming Utility Association—
Annual Convention—Cheyenne, Wyo.
May 5-6, 1924

Rocky Mountain Division, National Electric Light Association—
Quarterly Meeting—Cheyenne, Wyo.
May 5-6, 1924

Rocky Mountain Committee on Public Information—
Quarterly Meeting—Cheyenne, Wyo.
May 5-6, 1924

National Electric Light Association—
Annual Meeting—Atlantic City, N. J.
May 19-23, 1924

The Electric Power Club—
Absecon, N. J.
May 26-29, 1924

Pacific Coast Electrical Association—
Annual Meeting—Coronado, Calif.
June 17-20, 1924

The Colorado Central Railways Company of Denver, Colo., has purchased a factory site in that city and commenced remodeling the buildings on it for use in the manufacture of railway cars and electric and steam railway equipment. According to Orrin Merry, president of the company, it is expected that about 300 mechanics will be employed within the next 60 days and that more than 1,000 men will be at work at the end of six months. The plant will be operated in conjunction with the American Railway Steel Corporation and the Missouri Car Company of St. Louis, Mo.

Tenth Annual Convention Held by New Mexico Association

Public relations was the chief topic of discussion at the tenth annual convention of the New Mexico Electrical Association at Albuquerque, N. M., Feb. 18-20. Seventy-five utility men, including a large representation from Colorado and Wyoming, were in attendance. The convention included a quarterly section meeting of the Rocky Mountain Division of the National Electric Light Association. Sessions were held at the Franciscan, Albuquerque's new million-dollar hotel. Arthur J. Prager, general manager of the Albuquerque Gas & Electric Company and a former president of the association, headed the entertainment committee.

J. H. MacMillan, manager of the Santa Fe Water & Light Company, was elected president for the coming year. Other officers elected were K. W. Kissick, manager of the Deming Ice & Electric Company, first vice-president; Frank Schram, superintendent of Roswell Public Service Company, second vice-president; and B. L. Wiles, Albuquerque Gas & Electric Company, secretary-treasurer. The new executive committee consists of D. E. Bent, Tucumari, A. J. Prager, Albuquerque, D. W. Morgan, Las Cruces, and the retiring president, E. A. Bradner, Las Vegas.

San Diego, Calif., Electric Club Appoints New Committees

At a recent meeting of the Electric Club of San Diego, Calif., committees for the year were announced by the secretary, Guy Miller. The following chairmen were appointed: Wm. A. Cyr, program and publicity; W. H. Talbott, membership; A. E. Holloway, better business methods; C. C. Clardy, public education; Alex Schreiber, electric home; E. W. Weathers, better and more electrical farm equipment; A. E. Johnstone, better street lighting; Mr. Collins, better electrical wiring; F. R. Smalley, better street car cooperation; A. E. Holloway, better power company cooperation; Al Johnson, better telephone company cooperation; Thomas Howard, better army and navy relations; F. R. Smalley, relief.

The plan of giving over one meeting to each of the thirteen committees to present a program in conjunction with the work of that committee was outlined. P. P. Pine, retiring secretary and treasurer, in his final report described the growth of the club during the past year. The total membership is 120, of which 80 are resident members.

A week's exhibit by the Spokane (Wash.) Radio Association was brought to a close on Feb. 11. The exhibit was held in a prominent location in the business district, and was supplemented by window displays in leading stores. The association is endeavoring to raise funds for a broadcasting station.

At a recent meeting of the Engineers' Club of Seattle, Wash., Norwood W. Brockett, vice-president of the Puget Sound Power & Light Company of that city, addressed the members on the progress of hydroelectric development in the Pacific Northwest.

Manufacturer, Dealer and Jobber Activities

The Pittsburgh Transformer Company, Pittsburgh, Pa., recently secured through its agents, Eicher & Bratt, 570 Colman Building, Seattle, Wash., a contract to supply the Long-Bell Lumber Company, Longview, Wash., with the following transformers: three 2,000 kva., 66,000-13,200 step up; three 1,500 kva., 66,000-13,200 step down; twelve 833 kva., 13,200-230/460; three 500 kva., 13,200-115/230/460; six 100 kva., 13,200-115/230/460.

The Signal Fixture Company, Long Beach, Calif., has recently announced that the interest in the company owned by F. L. Lewis has been acquired by George H. Sanford. The concern engages in a general fixture and electric supply business.

Hobart Brothers Company, Troy, Ohio, has placed on the market a varirate connector designed to permit users of constant potential battery charging equipment to vary the rate of charge. The appliance is equipped with an ammeter and a special carbon pile resistance unit. A dial control permits the operator to vary the rate of charge.

The Weaver Electric Company, of Denver, Colo., specializing in motor repair work, has been reorganized as the result of Mr. Weaver's death several months ago and is now incorporated under the management of J. N. Pizer and H. Goldberg. The business is still conducted at 1732 Wazee Street.

The Mountain Electric Company, Denver, Colo., is issuing in pamphlet form a series of "Monthly Sales Helps." Although primarily intended for the trade, the publication is of interest to purchasing agents and others, according to John J. Cooper, general manager of the company and former chairman of the Electrical Cooperative League in that city. The new booklet replaces the company's former house organ, "Mountain Breezelets."

The State Electric Company of Salt Lake City, Utah, has recently filed articles of incorporation in that state. The company will engage in electrical repair work and in the sale of supplies and fixtures in Salt Lake City. The officers of the company are: Rosena Moan, president; Gail M. Nielsen, vice-president, and Arthur F. Moan, secretary.

The General Electric Company has put on the market a new single-throw starting switch for use with small a.c. motors. This switch is of the three-pole type, designed for quick "make and break," and is operated by an up-and-down movement of the handle. Overload protection is provided by means of two thermal cutouts, one connected in each of two legs of the motor circuit, in order to protect all phases of the motor against unbalanced and single phase overloads, as well as overloads distributed over all phases. These thermal cutouts have an inverse-time characteristic and sufficient thermal capacity to permit the motor to operate at all overloads of short duration that are not objectionable from the standpoint of overheating the motor.

The Western Electric Company has announced that Frank H. Swayze has been made line material sales manager of the company. Mr. Swayze will have his headquarters at New York.

The Line Material Company, South Milwaukee, Wis., has just issued its sectional catalog No. 24 for factory distribution to those who are interested. The catalog is complete in detail and contains much useful information relative to pole line equipment.

The Progressive Electric Works has been organized in Los Angeles, Calif., to specialize in the installation of industrial and electrical equipment and in the repairing of heavy duty motors. D. M. Palmer is head of the new concern.

The Hisey-Wolf Machine Company, Cincinnati, Ohio, has issued Bulletin No. 3016-S which describes the company's new wide-swing floor stand grinder. The new grinder is equipped with an enclosed 3-hp. motor.

H. W. Young, president of the Delta-Star Electric Company, Chicago, Ill., manages to combine business with pleasure for he is here seen with Mrs. Young feeding the pigeons before one of the old Italian fountains in Venice.

The United Electric Company, Canton, Ohio, manufacturer of the Ohio cleaner, has announced that G. B. Stone has been appointed district manager of the company's Indianapolis, Ind., territory. Mr. Stone was formerly sales manager for the Ohio Tuec Company, Toledo.

The Robbins & Myers Company, Springfield, Ohio, has issued its fan catalog No. 1222. The catalog contains descriptive matter covering the company's 1924 line of electric fans. The booklet is well illustrated.

Roller-Smith Company, New York, has published Bulletin No. 400 (December, 1923). Description of the company's line of type TID and FID d.c. switchboard instruments is incorporated in the bulletin. These instruments are recommended for use where small sized instruments are preferable to the conventional 7½-in. types.

The Westinghouse Electric & Manufacturing Company, in cooperation with the **Holophane Glass Company,** has perfected a new type of refractor for use with street lighting equipment. The new device utilizes the principle of symmetrically distributing light which has already been employed in the Westinghouse highway lighting unit. Its purpose is to conserve the light from a Mazda C lamp which is normally sent out in all directions. The device, known as the Bi-Lux refractor, accomplishes this object by changing the direction of the horizontal light rays with a series of minute glass prisms so arranged that the light intercepted through an angle of 180 deg. is diverted in direction from the lighting unit at an angle that gives a maximum spread of light over the surface of the street. In shape the Bi-Lux refractor is a truncated hollow cone 8½ in. in diameter at the widest end. It consists of elements of clear pressed glass nested one within the other and firmly clamped together so as to form a single unit. On the inside surface of the outer piece and the outside surface of the inner piece are hundreds of small prisms arranged in two sets around the circumference of the refractor, at such an angle that the light rays will be bent in the desired direction. The result is that a 400-cp. lamp when used in the refractor will deliver a beam of 2,000 cp. in both directions up and down the street, 425 cp. across the street at right angles to the curb line, and 250 cp. in the opposite direction along the sidewalk.

F. Hackleman & Company, electrical contractors, Seattle, Wash., recently moved from the American Bank Building to larger and better equipped quarters at 2032 Westlake Avenue. Fred Hackleman heads the concern.

The Lemvig Electric Shop, Montesano, Wash., has been sold by H. L. Lemvig to C. N. Day and N. H. Wyndearo. The concern will be operated under the name of the Edison Electric Shop.

John Sidebotham, Inc., Frankford, Pa., has purchased the entire tape plant of the Belden Company of Chicago, Ill. The Sidebotham company specializes in the manufacture of all classes of electrical tape. The recently purchased Belden plant will be dismantled and moved to a site adjacent to the plant of the purchasing company.

Condit Electrical Manufacturing Company, South Boston, Mass., has published Bulletin No. 429-3. The bulletin contains descriptions of the company's line of type M-5 and M-6 manhole oil type switches.

Eldredge Electric Manufacturing Company, Springfield, Mass., has recently prepared an advance bulletin covering the new Eldredge solenoid relay that is designed for automatically controlling the lighting of safety traffic signals. The device is designed to light the traffic signals simultaneously with the series street lights. A magnetic relay is operated by the high voltage circuit, thus closing the circuit used for the street lights. The relay may be installed either above or below the surface of the street.

The New Italian Art Association, Ltd., London, has recently published a catalog covering alabaster lighting bowls and lamps.

Personals

William Baurhyte, since 1913 a vice-president of the Los Angeles Gas & Electric Company and since 1921 vice-president and general manager of that company, has been elected to the position of president, succeeding W. B. Cline. At the annual election of officers,

WILLIAM BAURHYTE

immediately following the annual stockholders' meeting, Mr. Cline announced his retirement as president and this action was followed by the election of Mr. Baurhyte. At the time he joined the staff of the Los Angeles Gas & Electric Company as second vice-president, more than twenty years ago, Mr. Baurhyte had already attained a conspicuous position in the public utility field. He remained as second vice-president until 1913 when he was elected vice-president. In 1921, on account of his special experience, he was made vice-president and general manager, which position he has since held. Mr. Baurhyte will be succeeded as general manager by A. B. Day.

O. L. Mackell, chairman of the Denver, Colo., Electrical Cooperative League, arranged an entertainment and smoker for the employees of the Public Service Company of Colorado, Feb. 21.

Perry B. Miller, of the Simplex Electric Heating Company, Cambridge, Mass., has been transferred to San Francisco, Calif., to succeed R. C. W. Libbey, resigned. Mr. Miller will cover the eleven Western states for his company.

W. H. Seaver, manager, U. S. Steel Products Company; **S. B. Gregory** of the Arrow Electric Company; **Nathan Levinson,** Pacific Coast manager, radio department, Western Electric Company; **D. S. Spector** of The Spector Company; **B. M. Tassie,** Pacific Coast manager, Manning-Bowman Company; **L. O. Fassett,** Radio Corporation of America, and **W. E. Darden,** Pacific Coast manager of the Prestolite Company, were among the members of the San Francisco, Calif., electrical industry who recently spent several days in Los Angeles, Calif., on business.

W. P. Schwartz, Pacific Coast representative of the Standard Electric Stove Company, Goshen, Ind., has just returned from a trip to the factory. Mr. Schwartz stopped at several points on the way and reports favorable business outlook for the year. Electric range factories have made arrangements for greatly increased output and even this increased capacity may not be sufficient to take care of the demand.

Percy Booth, Pacific Coast manager of the Edison Electric Appliance Company, Chicago, Ill., has just completed a trip to Seattle, Wash., Portland, Ore., and other Northwestern cities. Mr. Booth reports excellent business conditions prevailing and a splendid outlook for the year.

W. L. Rademacher, of the Edison Lamp Works, Harrison, N. J., spoke on "Modern Lighting" at a recent meeting of the Electric Club of Seattle. **Faith Fairness,** of the Seattle, Wash., Post-Intelligencer, spoke on "Electrical Problems of the Housewife."

Lester M. Holt, supervising engineer of the Indian Reclamation Service, Yakima, Wash., has been elected president of the Yakima chapter of the American Association of Engineers. **John Sherman** has been elected vice-president; **Thomas Mead,** secretary, and **J. E. Forman** and **L. T. Jessup** as directors for the ensuing year.

J. F. Pollard, vice-president and general manager of the Coast Valleys Gas & Electric Company, Salinas, Calif.; **L. M. Klauber,** vice-president and general manager of the San Diego Consolidated Gas & Electric Company, San Diego; **A. M. Frost,** manager of the consumers' service department, Southern California Edison Company, Los Angeles; **Frank A. Leach, Jr.,** vice-president and general manager of the Pacific Gas and Electric Company, San Francisco; **Samuel H. Taylor,** secretary of the Pacific Coast Electrical Association, San Francisco; **J. B. Black,** vice-president and general manager of the Great Western Power Company, San Francisco; **C. T. Hutchinson,** vice-president and general manager of the McGraw-Hill Company of California, San Francisco; **C. C. Hillis,** president of the Electric Appliance Company, San Francisco; **R. A. Balzari,** manager industrial division, Westinghouse Electric & Manufacturing Company, San Francisco; **Robert Sibley,** executive manager of the California Alumni Association, Berkeley; **S. J. Lisberger,** chief of the division of electric distribution and steam engineering, Pacific Gas and Electric Company, San Francisco, and **S. B. Anderson,** treasurer, Pacific States Electric Company, San Francisco, were among those present at the meeting of the executive committee of the Pacific Coast Electrical Association held in San Francisco on Feb. 15.

Burton Y. Gibson, Pacific Coast representative of the Walker & Pratt Manufacturing Company, Boston, Mass., is on an extended trip through the Northwest. While in that territory Mr. Gibson will stage an intensive sales campaign in several cities.

George Teague, of the Pacific Northwest Traction Company, Everett, Wash., has been advanced to the position of assistant superintendent of that company, succeeding **C. C. Coates,** who has been made superintendent of the Everett division.

E. D. Harrington, assistant manager of the elevator section of the industrial department, General Electric Company, Schenectady, N. Y., is in Los Angeles, Calif., on a business trip in the interests of his company. Mr. Harrington is making special tests and conducting special investigations on elevator equipment for the benefit of his department.

H. D. Hawks, an officer of the Anaconda Copper Mining Company, Chicago, Ill., recently spent several days in Los Angeles, Calif.

Waldo G. Paine was elected vice-president and general manager of the Spokane & Eastern Railway & Power Company and of the Inland Empire Railroad at the annual meeting recently held in Chicago, Ill. The local officials remain the same.

William G. Campbell, representative of the Central Tube Company, Pittsburgh, Pa., was a recent Los Angeles visitor.

Oliver B. Lyman, manufacturers' agent, with offices in the Call Building, San Francisco, Calif., has been appointed Pacific Coast representative for the American Copper Products Corporation, New York City, and for the British American Tube Company, Inc., the American offices of which concern are in New York City.

H. L. Stoner, one of the officials of the Utah Power & Light Company, Salt Lake City, Utah, recently spent several days in Los Angeles, Calif.

Roy W. Elliott, one of the executives of the Albert Sechrist Manufacturing Company in Denver, Colo., for 18 years, and secretary of the Electrical Cooperative League of that city, has entered the jobbing field through the organization of the Elliott-Schmidt Electric Supply Company. Mr. Elliott is a native of Laclede, Mo., and with the exception of two years spent in the elevator and mill business in Kansas City has had all of his business career in Denver with the Sechrist company. In 1905 he started as an apprentice in the shop and passed through all the mechanical departments,

ROY W. ELLIOTT

becoming superintendent of the factory. Later the order department was placed under his jurisdiction and then he became purchasing agent and sales manager. He succeeded the late Albert Sechrist as a member of the advisory board of the Denver league and was elected secretary of the organization in July, 1922, which honorary position he has held until the present time.

Philip F. Apfel, president of the Electric Heating & Manufacturing Company, Seattle, Wash., is in San Francisco, Calif., on business for his company. Mr. Apfel drove from Seattle and reports a very interesting and enjoyable trip. He is particularly enthusiastic about California good roads.

Mrs. Helen Grahame, of the California Electrical Cooperative Campaign, Los Angeles, Calif., recently spoke before the San Francisco Electrical Development League on the electrification of the home.

James Duncan, of the Mexican Light & Power Company, Mexico City, Mexico, is in San Francisco, Calif., on business for his company.

W. M. Birchfield of the Standard Electric Time Company, Springfield, Mass., was a recent visitor in Los Angeles, Calif., in the interests of his company. While there he was accompanied by **W. S. Harrell,** Pacific Coast manager of the company.

George E. Dawson, formerly of the supplies section of the publicity department of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has been transferred to the San Francisco, Calif., office where he is now assistant in the advertising department.

A. S. Moody, local manager of the Los Angeles, Calif., office of the General Electric Company, has been elected president of the Los Angeles Electric Club. Mr. Moody succeeds R. E. Smith, advertising agent of the Southern California Edison Company, Los Angeles, under whose administration the club made notable progress. Mr. Moody has been with the General Electric Company on the Coast for over sixteen years. He is a graduate of the University of California, class of 1906. In 1907 he was made sales engineer in the San Francisco, Calif., office of the General Electric Company, and in 1908 he was transferred to the Seattle, Wash., office of the company in a similar capacity.

A. S. MOODY

In 1910 he was made manager of the supply department of the Portland office and in 1920 he was appointed assistant Northwest manager with headquarters at Portland, Ore. Mr. Moody has been an active worker in association affairs and has held office in the Northwest Electric Light and Power Association and the American Institute of Electrical Engineers.

E. C. Portman, Jr., for over two years manager of the advertising service department of the Journal of Electricity, has resigned to become affiliated with the American Seedless Raisin Company. Mr. Portman's headquarters will be in San Francisco, from which point he will cover the entire United States.

John E. Loiseau, secretary of the Public Service Company of Colorado, Denver, Colo., was awarded the prize in a recent contest conducted by his company in Denver to originate a new name for the plots of land on which some gas holders and electric substations are located in various parts of the city. He suggested the name of "service reserve."

Mrs. Alma E. Hunt, for some time the range and cooking specialist of the Southern Colorado Power Company, Boulder, Colo., has become a special demonstrator for the Edison Electric Appliance Company in the mountain region, under the direction of B. E. Rowley, district manager of the company.

Ernest Stenger, receiver of the Denver, Colo., Tramway Company; **J. C. Burger** and **Clare N. Stannard** of the Public Service Company of Colorado, Denver, Colo.; **W. P. Southard** of the Trinidad, Colo., Electric Transmission, Railway & Gas Company; **Fred Norcross** of the Home Gas & Electric Company of Greeley, Colo., and **J. A. Clay** of the Western Colorado Power Company, Durango, Colo., are among the electrical and utility men named on the state-wide committee for the Golden Jubilee to celebrate in 1926 Colorado's fiftieth anniversary.

A. A. Wilson, formerly general agent of the Chicago, Milwaukee & St. Paul Railroad at Denver, Colo., has been appointed traffic manager of the Salt Lake & Utah Railroad, with headquarters at Salt Lake City, Utah. Mr. Wilson succeeds **A. V. Kipp,** who resigned last October to become assistant general freight agent of the Oregon Short Line Railroad. Mr. Wilson has been identified with the Chicago, Milwaukee & St. Paul Railroad for the past twenty-seven years, and has worked in various capacities in the traffic department. He began his railroad career as a telegraph operator, worked up to division freight and passenger agent in Iowa, was then promoted to assistant general freight agent at Chicago, and then to general agent of the line at Denver.

L. A. S. Wood, manager of the street lighting department of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has just completed a trip to various Pacific Coast cities. Mr. Wood is chairman of the street and highway lighting committee of the National Electric Light Association.

Fred Todt, manager of the San Francisco district of the Pacific States Electric Company, San Francisco, Calif., and **C. W. Goodwin, Jr.,** of the credit department of the same company, recently spoke before a meeting of electrical dealers of the San Joaquin Valley, held at Tulare, Calif.

Lewis A. Lewis, sales manager of The Washington Water Power Company, Spokane, Wash., has attended a committee meeting of the Northwest Electric Light and Power Association held at Portland, Ore. This meeting discussed at length the electric range situation in the Northwest.

Robert K. Brown, superintendent and chief engineer of the Salt Lake & Utah Railroad Company, Salt Lake City, Utah, has been elected president of the Engineering Council of Utah, to succeed Dr. Joseph F. Merrill. The Engineering Council of Utah is composed of representatives from all societies of professional engineers in the State of Utah. Mr. Brown is a graduate of Rensselaer Polytechnic Institute, class of 1888, in civil engineering. His first position after leaving college was with the Pennsylvania lines in maintenance of way and construction engineering. After ten years of service with the

ROBERT K. BROWN

Pennsylvania he became associated with the Los Angeles and Salt Lake Railroad in maintenance and operation, with headquarters at Los Angeles, Calif., and later at Salt Lake City. His connection with this road extended over a period of seventeen years. During the past five years he has filled his present position of superintendent and chief engineer of the Salt Lake & Utah Railroad, an electric interurban which runs between Salt Lake City and Payson, Utah, and also known as the Orem Line. Mr. Brown was president of the Utah Society of Engineers for some time, and has been on the executive board for many years. He is at present treasurer of this society and is still a member of the executive board. He has been on the governing board of the Engineering Council of Utah since its organization, and was also secretary of that organization until about a year ago. He has been a member of the American Society of Civil Engineers for the past thirty years, and also has been a member of the American Railway Engineering Association for a great many years.

W. G. Grady, of the auditing department of the Edison Lamp Works, Harrison, N. J., has been spending some time in the San Francisco district of the company. He will return to the factory within a few days.

W. R. Mathews, electrical engineer of The Washington Water Power Company, Spokane, Wash., is spending some time at the Edison Lamp Works, Harrison, N. J., studying illumination engineering.

Norman Begg, of the Mexican Light & Power Company, Mexico City, Mexico, is spending some time in San Francisco, Calif., investigating central station practice.

Trade Outlook

San Francisco

General business conditions continue good, with notable improvement in many lines. Recent rains have materially improved conditions in the country, and the water supply has been benefited, storage now approximating normal.

Building activity continues, and the demand still exceeds the supply. This results in an exceedingly heavy demand for electrical construction materials. Appliances are also in strong demand, and on some lines deliveries are more than thirty days behind orders.

Credits are easy and collections are generally good. There is still plenty of money available for proper business development activities, and interest rates are normal.

Recent advances in the price of oil have tended to increase general business volume in oil-producing territory. Owing to the raise in the price of oil, the rates for manufactured gas have advanced, and this is expected to be reflected in the increased use of electricity for manufacturing and domestic purposes.

Portland

The building trades have had the most active winter season in years. With only short interruptions the weather has been favorable for out-of-door work. As a result there has been practically no unemployment among the skilled workmen and very little of any kind. The residence building of last year, although the greatest ever known here, did not keep pace with the growing population. Vacant houses are very scarce and rents high. Everything points to tremendous activity in all types of building construction in the near future. Residence permits for January, 1924, were 60 per cent over the figure of a year ago.

There has been some falling off in lumber orders. The output is still heavy, however, the surplus being used to replenish stocks which were low. There has been some cancellation of orders and disappointment that the Japanese buying was not maintained, but all this is considered but a temporary off-season lull. An increase in freight rates to Atlantic ports has reduced the volume of business somewhat.

Los Angeles

General business conditions in Los Angeles are somewhat improved over the conditions prevailing during the previous two weeks, which is due in a measure to the influx of Eastern visitors. Practically every hotel in the city is full. This makes for brisk trade in mercantile institutions and, in fact, in all lines of business. The increase in traffic on the electric railways, due to tourist travel, is particularly noticeable.

The electrical industry is reacting to general trade conditions, and the retail end of the business reports very fair results for this season. Wholesale and manufacturing branches are keeping busily occupied filling orders that are coming in.

There is a slight excess of labor at the present time.

Building construction continues to run well ahead of last year. Permits issued during the first two weeks of February amounted to 2,916 with a valuation of $9,210,287, as compared to 2,202 with a valuation of $6,409,574 for the corresponding period in 1923.

Salt Lake City

The recent rise in silver and lead prices, although comparatively small, is welcome news to the mining industry of this section. Practically all the mining camps are prospering, and that prosperity is reflected in general business conditions. Even though copper is at a rather low figure, the Utah Copper Company is operating at very nearly normal capacity, and there appears to be no indication of any unfavorable change in this situation.

Farmers of Utah and Idaho are well pleased with the sugar beet contracts which have been entered into with the sugar companies for 1924, and increased tonnage is looked for this year.

Employment conditions are better than for several winter seasons past. The usual winter curtailment, other than seasonal, is not so pronounced. Most of the existing small surplus of labor will be absorbed within a short time by building activity and resumption of work in the agricultural districts. Railway shops, which have been operating with smaller forces during the past two months, are gradually increasing their forces.

The month of March will witness greater activity than ever among the electrical dealers in devoting intensive efforts to washing machine sales. Due to the fact that general conditions are better than at this time last year, even better results are looked for than the very good showing made then.

Credit conditions and collections continue to improve.

Denver

Business in general, considering the season, remains good although the financial situation in various parts of the Mountain region is not encouraging. A number of smaller banks in Wyoming and New Mexico have been in difficulties, but the condition in most of the larger cities is healthy.

Building operations throughout the region have dropped off, due principally to the weather. The effect is apparent in the labor situation with the unemployment largely in unskilled lines. Present indications are that this is temporary, as a number of large building and industrial projects are planned for the early spring.

More and more emphasis is being given to Denver for railroad development, as indicated by improvements made in the terminal and shop facilities of the principal lines entering the city. The new Burlington shops, additions to the Denver & Rio Grande Western and Colorado & Southern shops, a new freight house for the Union Pacific, and the establishment of a car foundry here are the major developments along this line in addition to the boring of the Moffat tunnel.

Kitchen lighting campaigns are helping to keep the electrical contractors busy, and a toaster campaign is being planned by the industry to stimulate interest in the appliance business during the temporary lull.

Spokane

With a very early spring already well begun, the outlook for better business in 1924 has brightened considerably. There is an increasing activity in building and real estate business with announcements of several new structures.

The local woodworking plants are operating at good output, several being on double shift and one plant on three shifts.

The packing plants are sustaining a level of production materially higher than that of last year, with indications for a good season.

Preliminary reports of the U. S. Geological Survey covering mineral production of Washington and Idaho for the year 1923 indicate that the metalliferous mine output of the former state, nearly all of which is produced east of the Columbia River, shows an increase of 100 per cent over 1922, and that of Idaho an increase of 50 per cent. The outlook at the beginning of 1924 is for increased production this year over 1923 in both of these states. Zinc production in the Coeur d'Alene district has been stimulated by the recent increase of 2c. in the price of zinc.

Seattle

Judging by the volume of building permits issued, spring construction activity is at hand, although the entire winter has been the most active in the city's history. A far greater volume of building in all lines is under way than for many years past, and prospects for the early spring are excellent.

Demand for schedule materials, better types of indirect fixtures, outlets, and all kinds of home equipment is very active. Increased commercial activities are creating new and growing demands for all forms of electrical equipment. With ample water fall to insure a plentiful supply of electrical energy the industry is expected to receive a real impetus in the Northwest.

Retail buying continues satisfactory in nearly every line, with the department stores and clothiers reporting a marked stimulus recently.

Stocks are reported to be in fair condition, with prices firm and collections satisfactory.

The lumber industry reports prices firm, with the Japanese credit situation showing improvement. Heavy export stocks of lumber are on the west coast, awaiting disposition. This is largely due to arrangements made by Japanese buyers for financing. Continued prosperity in the lumber industry is confidently predicted.